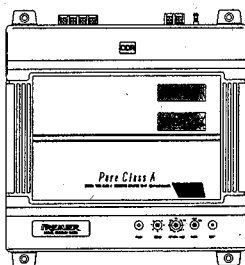


# Service Manual

**PIONEER**  
*The Art of Entertainment*

• RS-A1/UC



ORDER NO.  
**CRT1540**

DIGITAL "PURE CLASS A" INTEGRATED AMPLIFIER  
OPTICAL DIGITAL REFERENCE SYSTEM

# RS-A1

 UC,EW

DIGITAL "CLASS A" INTEGRATED AMPLIFIER  
OPTICAL DIGITAL REFERENCE SYSTEM

# RS-A2

 UC,EW

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FA OCT. 1993 Printed in Japan

## SAFETY INFORMATION (UC MODEL)

### CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely; you should not risk trying to do so and refer the repair to a qualified service technician.

### WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5). When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

## 1. DISASSEMBLY

### ●Case

1. Unfasten four screws and then remove the case.

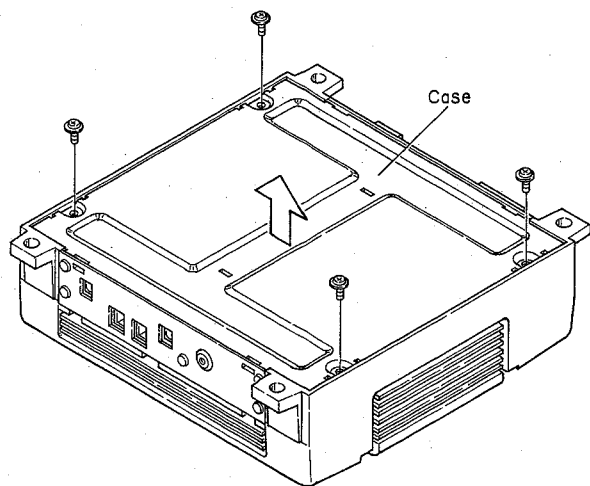


Fig.1

### ●Panel

1. Unfasten ten screws A and then remove the two Panels.

### ●Amp Assy

1. Unfasten three screws B.
2. Unfasten eight screws C.
3. Remove the amp assy.

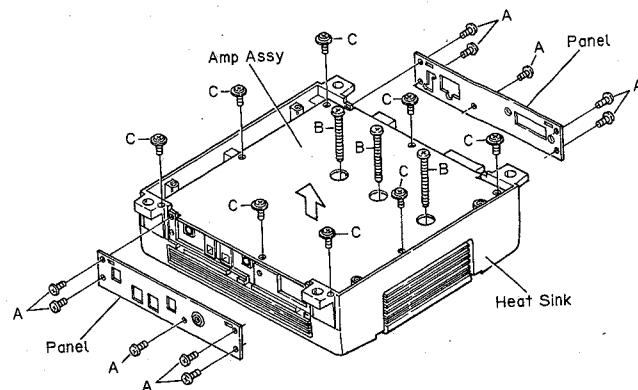


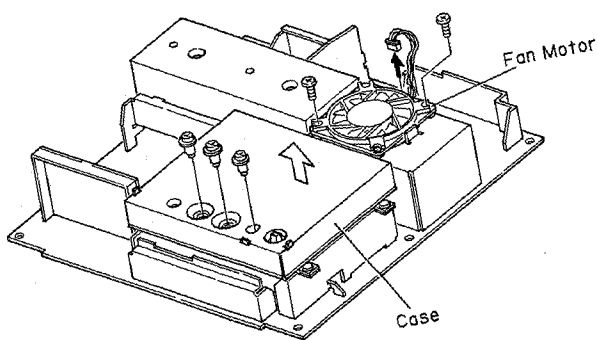
Fig.2

●Fan Motor

- 1.Remove the connector.
- 2.Unfasten two screws and then remove the fan motor.

●Case

- 1.Remove the three knobs.
- 2.Remove the case.



●VOL Unit

- 1.Unbend the claws at two locations until straight.
- 2.Remove the VOL unit.

●Transistor, Diode

When you exchange the transistor of Q541.

- 1.Unfasten six screws A.
- 2.Remove the two solders.
- 3.Unbend the claws at two locations until straight.
- 4.Remove the holder A.
- 5.Remove the transistor of Q541.

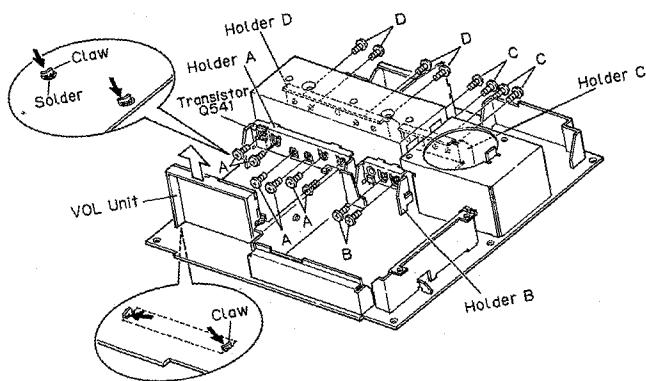


Fig.3

Fig.5

●DSP P.C.Board

- 1.Remove the two connectors.
- 2.Unfasten four screws and then remove the DSP P.C.Board.

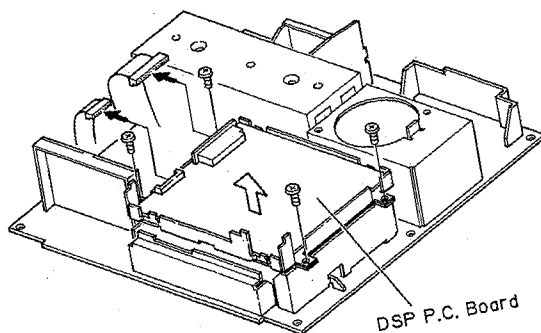


Fig.4

2. ADJUSTMENT

2.1 POWER SUPPLY VOLTAGE ADJUSTMENT

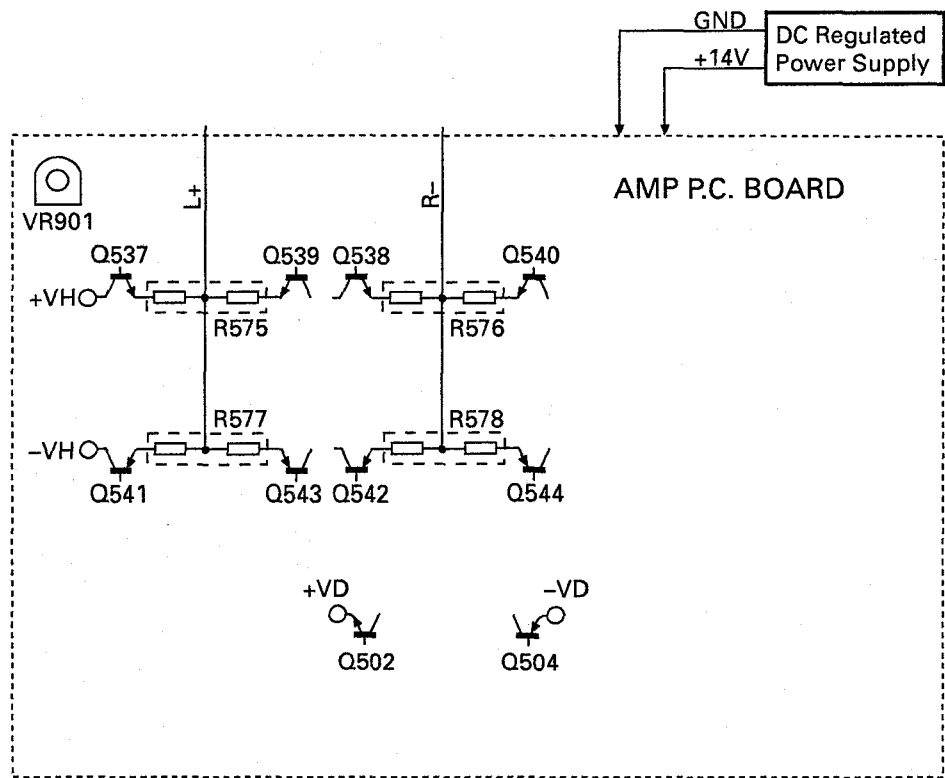


Fig.6

Note:

1. PWM control switch should be "L" (at VOL step 15 and above).

●RS-A1X

	Adjusting Point	Adjustment Method
DC/DC converter output voltage (VH)	VR901	DC V meter (+VH-GND) : +14±0.2V
	VR901	DC V meter (-VH-GND) : -14±0.2V
Supply voltage of drive stage (VD)	VR901	DC V meter (+VD-GND) : +15V more than
	VR901	DC V meter (-VD-GND) : -15V less than

●RS-A2X

	Adjusting Point	Adjustment Method
DC/DC converter output voltage (VH)	VR901	DC V meter (+VH-GND) : +24±0.2V
	VR901	DC V meter (-VH-GND) : -24±0.2V
Supply voltage of drive stage (VD)	VR901	DC V meter (+VD-GND) : +25V more than
	VR901	DC V meter (-VD-GND) : -25V less than



3. BLOCK DIAGRAM

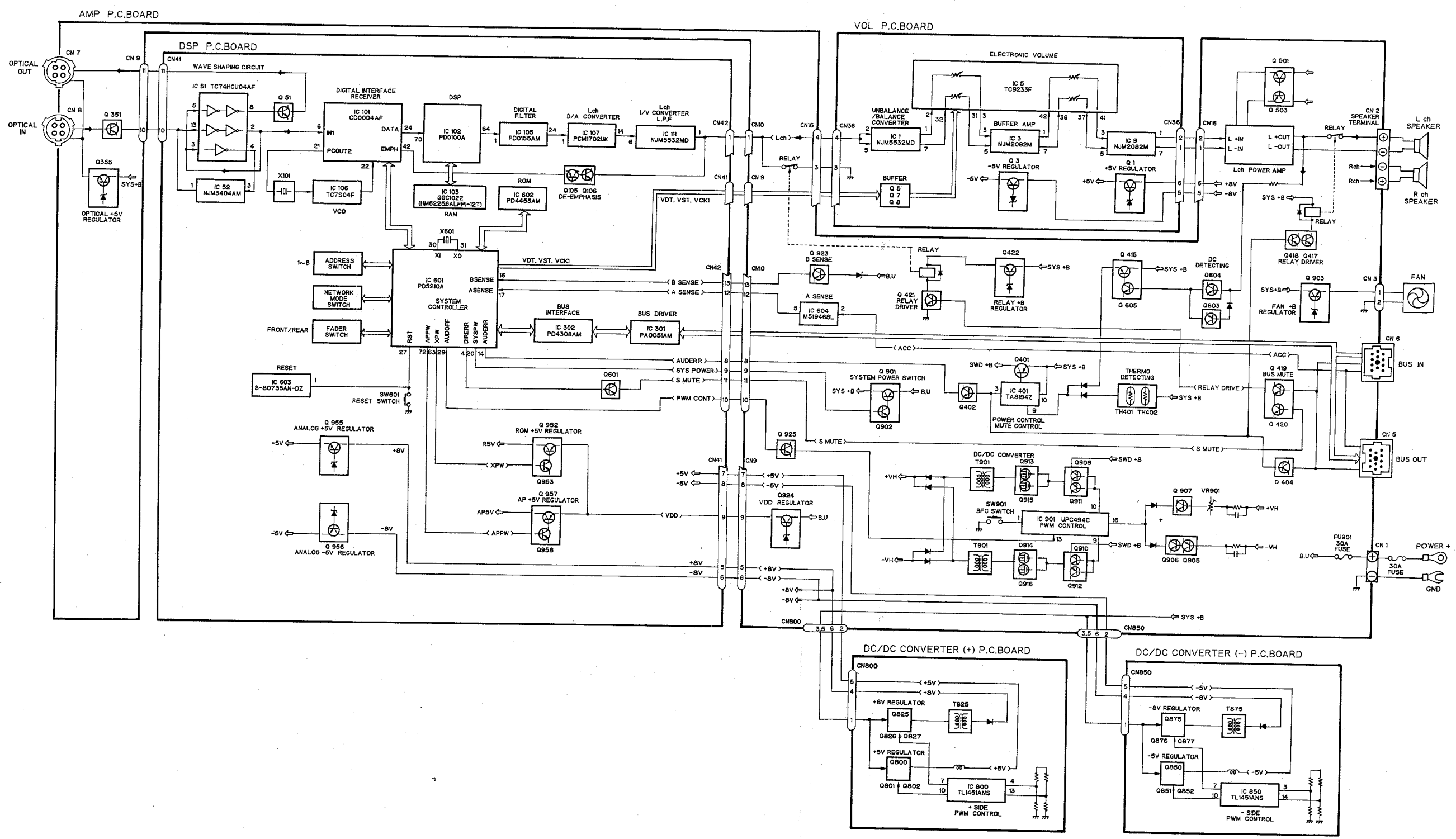


Fig.9

## 2.2 IDLE CURRENT ADJUSTMENT

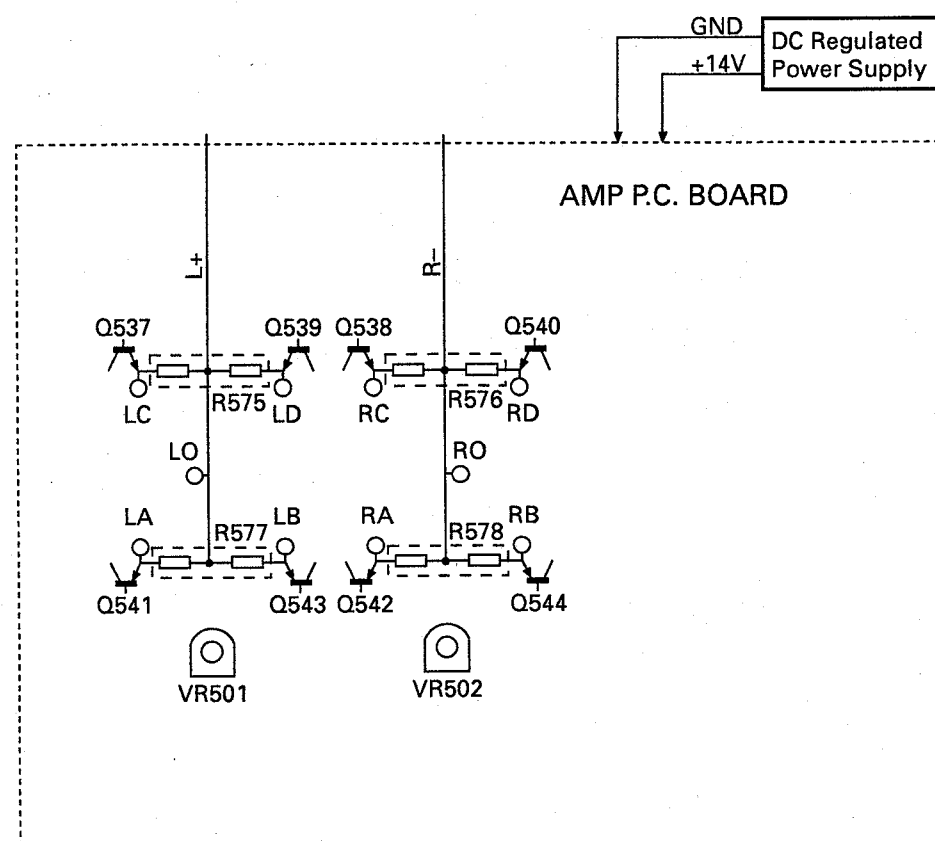


Fig.7

### Notes:

1. Adjustment of the output voltage of DC/DC converter should have been done.
2. PWM control switch should be "L" (at VOL step 15 and above).
3. For adjustment, rough adjustment should be made by VR501 and VR502 as soon as the power is turned ON.  
Complete adjustment should be done in 2 to 3 minutes after the power is turned ON.
4. For check, measurement should be taken after the duration of 3 minutes since the power is turned ON.

### ●RS-A1X

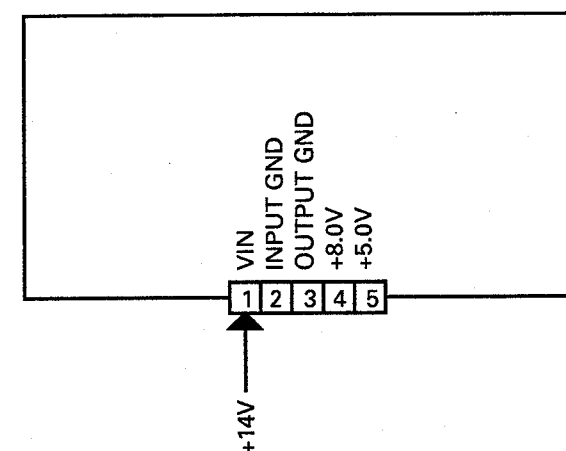
	Adjusting Point	Adjustment Method
IDLE CURRENT	VR501, VR502	DC V meter (LA-LC, LB-LD, RA-RC, RB-RD) : $308\text{mV} \pm 22\text{mV}$
IDLE CURRENT	VR501, VR502	DC V meter (LA-LO, LB-LO, LC-LO, LD-LO, RA-RO, RB-RO, RC-RO, RD-RO) : $22\text{mV} \pm 11\text{mV}$

### ●RS-A2X

	Adjusting Point	Adjustment Method
IDLE CURRENT	VR501, VR502	DC V meter (LA-LC, LB-LD, RA-RC, RB-RD) : $154\text{mV} \pm 9\text{mV}$

## 2.3 DC/DC CONVERTER EXAMINATION

DC/DC CONVERTER (+) P.C.BOARD



DC/DC CONVERTER (-) P.C.BOARD

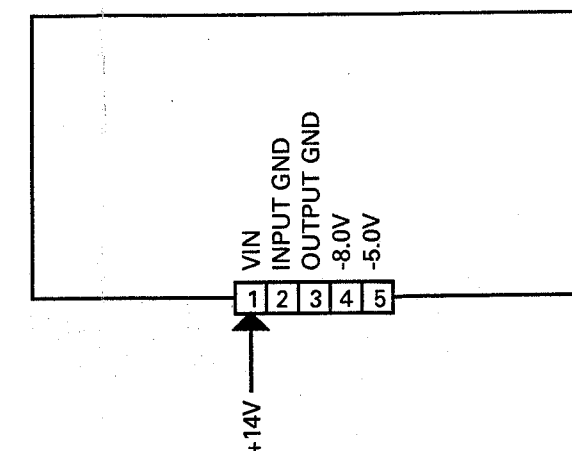


Fig.8

### Note:

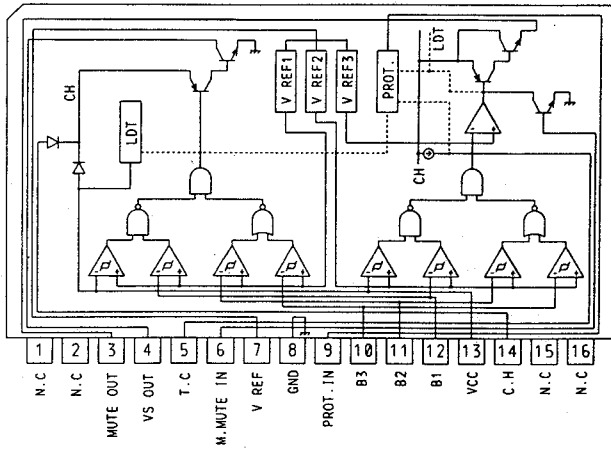
1. This is examination for separate DC/DC converter.

### ●RS-A1X, RS-A2X

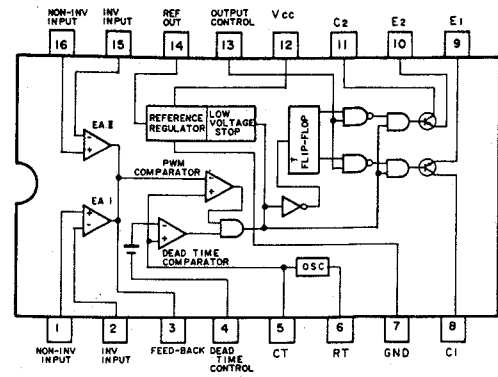
	Adjustment Method
DC/DC converter output voltage (+)	DC V meter (+8.0V-GND) : +8.0V DC V meter (+5.0V-GND) : +5.0V
DC/DC converter output voltage (-)	DC V meter (-8.0V-GND) : -8.0V DC V meter (-5.0V-GND) : -5.0V

● ICs

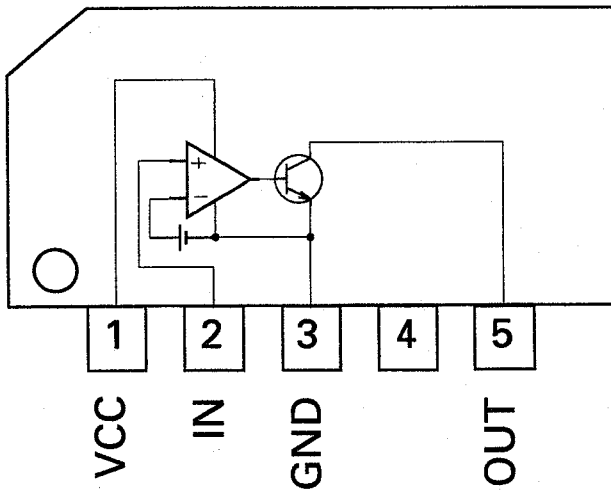
TA8194Z



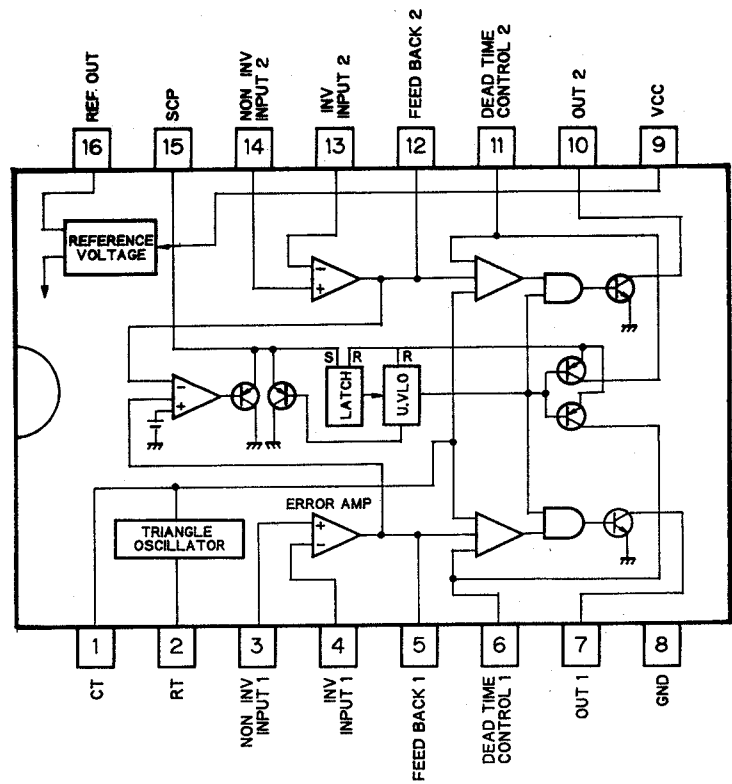
UPC494C



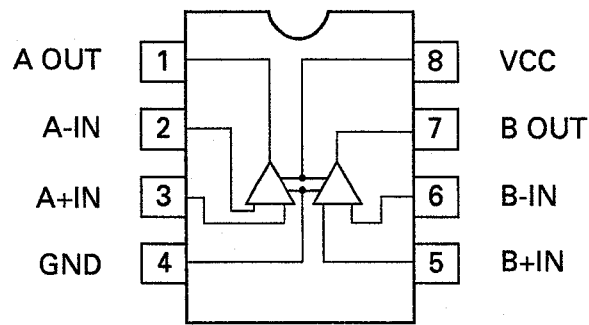
M51946BL



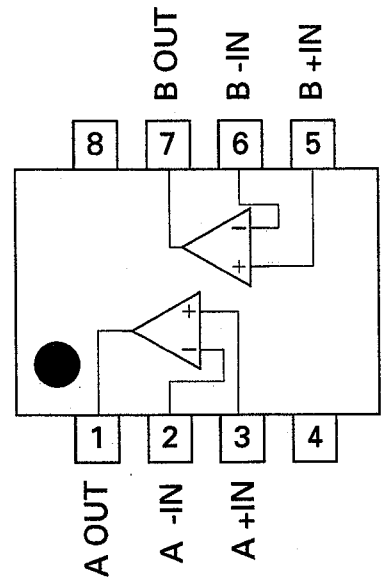
TL1451ANS



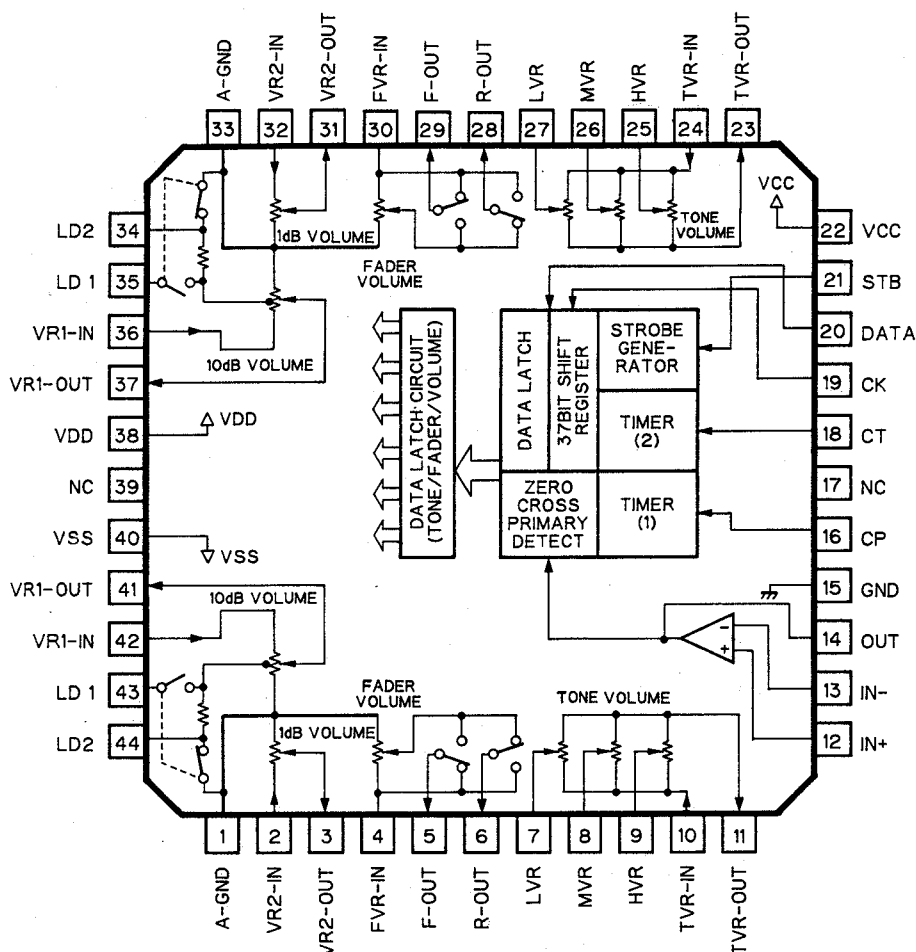
NJM5532MD



NJM2082M



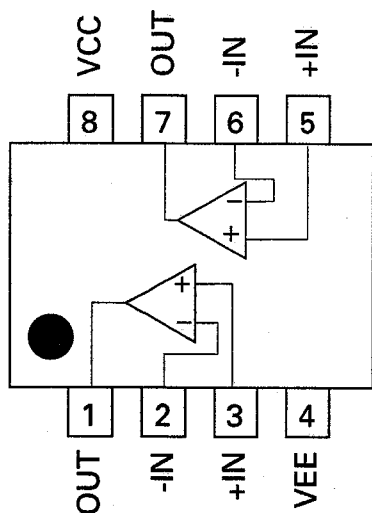
\*TC9233F



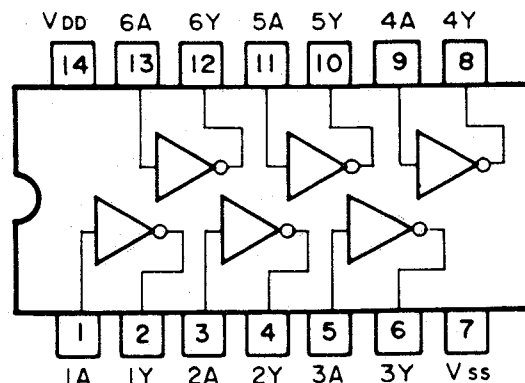
IC's marked by\* are MOS type.

Be careful in handling them because they are very liable to be damaged by electrostatic induction.

NJM4558M

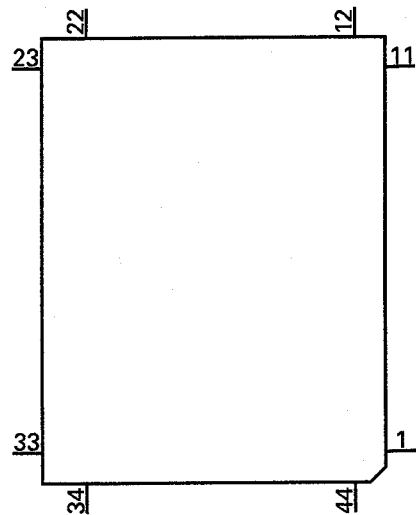
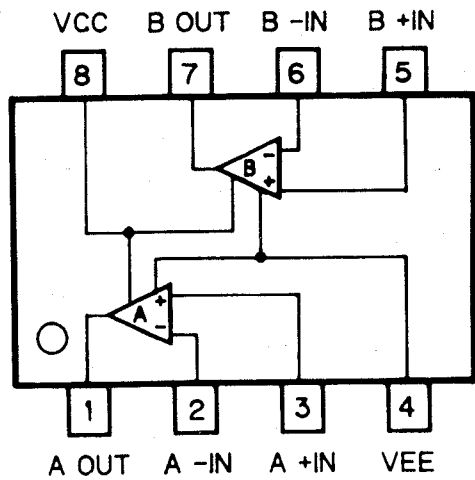


\*TC74HCU04AF



NJM3404AM

\*CD0004AF



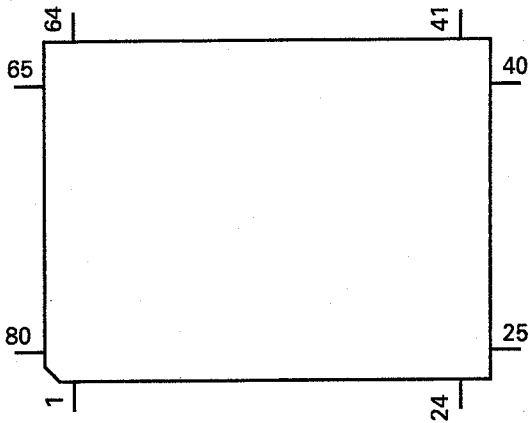
● Pin Functions(CD0004AF)

Pin No.	Pin Name	I/O	Function and Operation
1	RESET	I	Power ON/RESET input. Reset with "L"
2	16/24	I	Input format selecting terminal. provided with a pull-up resistor
3	A/M	I	Input format selecting terminal. provided with a pull-up resistor
4,5	S1-2	I	Input selecting terminal
6-9	IN1-4	I	Data input terminal
10,11	TEST1-2	I	Terminal for testing. Normally "H" or open. Provided with a pull-up resistor
12	PCVS		Input for setting self-propelling frequency for VCO
13	PCOUT1		Phase comparator output 1
14	R		Connecting terminal for VCO adjusting resistor
15	VCOIN		Control voltage input for VCO
16	VDD1		Power terminal for VCO line
17	VCOOUT		VCO output (384 fs)
18	VSS1		Grand terminal for VCO line
19,20	CA,CB		Connecting terminal for VCO adjusting capacity
21	PCOUT2		Phase comparator output 2
22	SIGIN	I	Input terminal for external VCO
23	BCK	O	Demodulated data bit clock output (64 fs)
24	DATA	O	Demodulated audio data output
25	LRCK	O	Demodulated data LR clock output. L channel with "H"
26,27	OMODE0-1	O	Data output format selecting terminal
28	VSS		Grand terminal for logic lin
29	BLOCK	O	Block start output terminal
30	UBIT	O	User data output terminal
31	CBIT	O	Channel status output terminal
32	VBIT	O	Validity output terminal
33	VDD		Power terminal for logic line
34	CS	I	Chip select input terminal. Selecting state with "L"
35	SDATA	O	Serial data output terminal
36	SCK	I	Serial clock input terminal
37	COPY	O	Copy prohibit information output terminal
38	A/D	O	Audio/digital data information output terminal
39	DAT	O	DAT information output terminal
40,41	FS0-1	O	Sampling frequency information output terminal
42	EMPH	O	Emphasis information output termina
43	ERR	O	Data reading error output terminal. Error with "H"
44	VCOINH	I	Input terminal for stop of oscillation of internal VCO. Stop with "H"

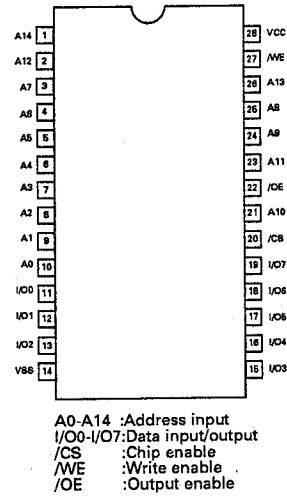
## ●Pin Functions (PD0100A)

Pin No.	Pin Name	I/O	Function and Operation
1	MOUT	O	Master clock output pin
2	DRSEL	I	DRDY logic select pin
3	XIN	I	Crystal oscillating element connection pin
4	XOUT	O	Crystal oscillating element connection pin
5	EXCK	I	External clock input
6	VDD1		Power supply
7	WE0		Write enable pin of external RAM
8	OE0		Output enable pin of external RAM
9	CE1		Chip enable pin of external RAM
10	CE0		Chip enable pin of external RAM
11-26	RAMIO15 -RAMIO0	O	Data input output pin of external RAM
27	A14	O	Address output pin of external RAM
28	VSS1		GND
29-36	A13-A6	O	Address output pin of external RAM
37	VSS2		GND
38-43	A5-A0	O	Address output pin of external RAM
44	VDD2		Power supply
45	RESET	I	Reset input signal pin
46	DRDY	O	U-COM I/F data reception enable state output pin
47	RDATA	I	U-COM I/F data input
48	RCK	I	U-COM I/F data input
49	A/D	I	U-COM I/F address / data discrimination input pin
50	CS	I	Chip select input pin of DASP
51	CKSEL2	I	Select pin for the clock outputted from CKOUT
52	CKSEL1	I	Master clock frequency select pin
53	XSEL	I	Frequency / external clock select pin
54	WCK	O	Word clock output pin
55	64FSOUT2	O	64FS bit clock output pin
56	64FSOUT1	O	64FS bit clock output pin
57	32FSOUT2	O	32FS bit clock output pin
58	32FSOUT1	O	32FS bit clock output pin
59	LRCKOUT2	O	LR clock output pin
60	LRCKOUT1	O	LR clock output pin
61	VDD3		Power supply
62-64	AOUT3 -AOUT1	O	Lch, Rch audio serial data output pin
65	LRCKIN2	I	LR clock input pin 2 (For read audio serial data)
66	BCKIN2	I	Bit clock input pin 2 (For read audio serial data)
67	AIN2	I	Lch, Rch audio serial data input pin 2
68	LRCKIN1	I	LR clock input pin 1 (For read audio serial data)
69	BCKIN1	I	Bit clock input pin 1 (For read audio serial data)
70	AIN1	O	Lch, Rch audio serial data input pin 1
71	BCKINV		Output logic select pin (32FSOUT1, 2 64FSOUT1, 2 when audio through mode)
72	LRCKINV		Output logic select pin (LRCKOUT1, 2 when audio through mode)
73	THRU		Audio through mode or normal mode select pin
74	ADCLCK	O	LR clock output pin for A/D converter
75	ADCBCK	O	Bit clock output pin for A/D converter
76	VSS3		GND
77-79	TP3-TP1	I	Test mode pin (Normal : Open)
80	CKOUT	O	Internal system clock or master clock 3/2 divider output pin

\*PD0100A



\*GGC1022  
(HM62256ALFPI-12T)

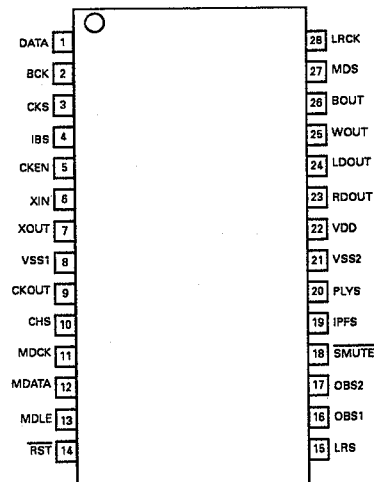


●Pin Functions (PD0155AM)

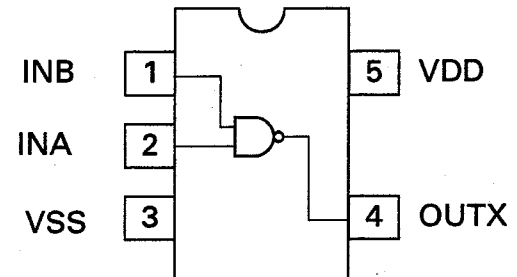
Pin No.	Pin Name	I/O	Function and Operation		
1	DATA	I	Serial data		
2	BCK	I	Bit clock		
3	CKS	I	XIN (Master clock) frequency select (H:384fs,L:256fs)		
4	IBS	I	Input data format select		
5	CKEN	I	X'tal control		
6	XIN	I	X'tal input		
7	XOUT	O	X'tal output		
8	VSS1		GND1		
9	CKOUT	O	Master clock output		
10	CHS	I	Play data channel select (1ch play mode) (H:Lch,L:Rch)		
11	MDCK	I	Clock input for micro computer data		
12	MDATA	I	Micro computer data input		
13	MDLE	I	Latch enable signal for micro computer data		
14	RST	I	System reset (H:Normal,L:Reset)		
15	LRS	I	LR clock polarity select		
			LRS	LRCK	L
			H	H	L
16	OBS1	I	Output data bit length select		
			OBS1	OBS2	Bit length
			H	H	16
			H	L	18
17	OBS2	I	L	H	20
			L	L	19+1
18	SMUTE	I	Soft mute control (H:OFF,L:ON)		
19	IPFS	I	Error correction function select		
20	PLYS	I	Play channel mode select (H:2ch play,L:1ch play)		
21	VSS2		GND2		
22	VDD		+5V		
23	RDOUT	O	Rch serial data output		
24	LDOUT	O	Lch serial data output		
25	WOUT	O	Word clock output		
26	BOUT	O	Bit clock output for output data		
27	MDS	I	Mode set select (H:Terminal control,L:Micro computer control)		
28	LRCK	I	LR clock input		



\*PD0155AM



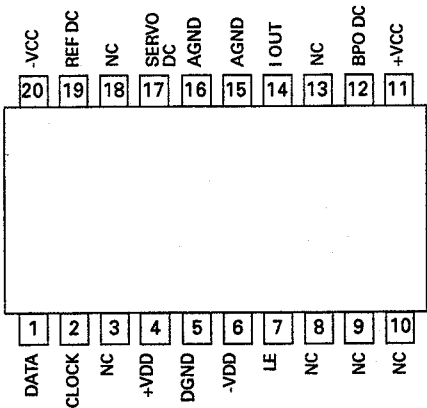
\*TC7S04F



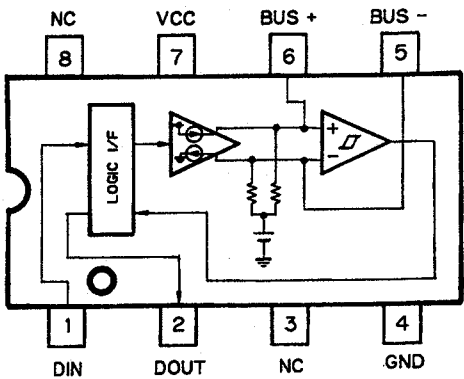
●Pin Functions (PCM1702UK)

Pin No.	Pin Name	I/O	Function and Operation
1	DATA	I	Serial data
2	CLOCK	I	Bit clock
3	NC		No connection
4	+VDD	I	Digital +5V
5	DGND	I	Digital GND
6	-VDD	I	Digital -5V
7	LE	I	Latch enable
8-10	NC		No connection
11	+VCC	I	Analog +5V
12	BPO DC	I/O	BPO decouple
13	NC		No connection
14	IOUT	O	Current output
15,16	AGND	I	Analog GND
17	SERVO DC	I/O	Servo decouple
18	NC		No connection
19	REF DC	I/O	REF decouple
20	-VCC	I	Analog -5V

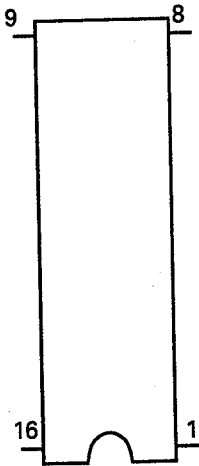
\*PCM1702UK



PA0051AM



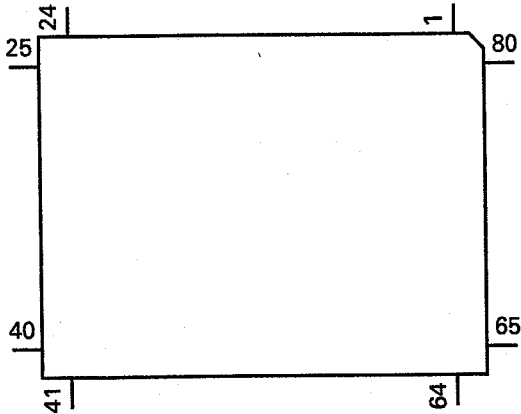
PD4308AM



●Pin Function(PD4308AM)

Pin	Pin Name	I/O	Function and Operation
1	IPSCK	I/O	Clock input/output
2	IPSI	I	Data input
3	IPSO	O	Data output
4	IPIRQ	I	Interrupt input
5	IPRW	O	Read / write output
6	X1		Crystal oscillator connection pin
7	X0		Crystal oscillator connection pin
8	GND		GND
9	RX	I	Data input
10	TX	O	Data output
11	NC		Not used
12	IPCD	O	Command/data output
13	IPCS	O	Chip select output
14	IPRST	O	Reset output
15,16	VDD		Power supply

\*PD5210A

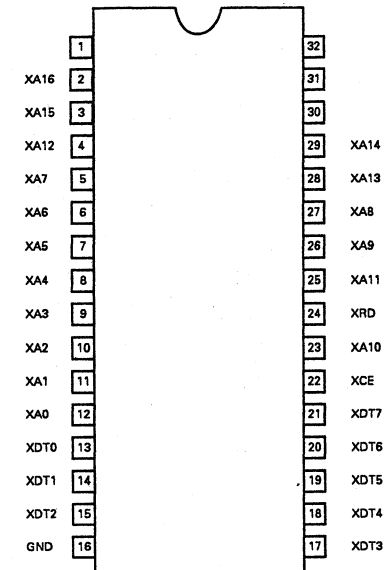


Output Format	Meaning
C	C MOS output
N	N channel open drain

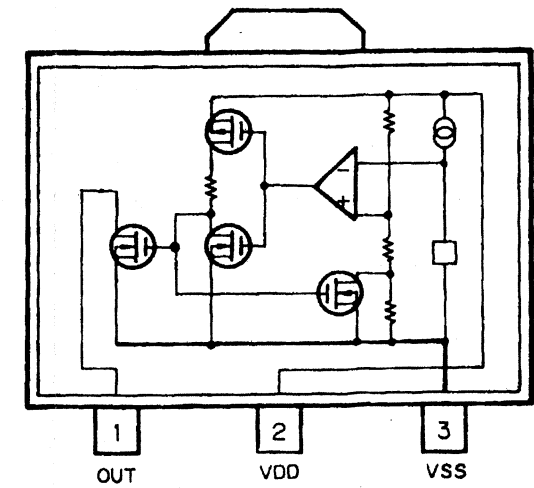
## ●Pin Functions (PD5210A)

Pin No.	Pin Name	I/O	Output Format	Function and Operation
1	SWST1	O	C	Strobe (Function SW)
2	SWST0	O	C	Strobe (Address)
3	DSPEN	O	C	DSP enable
4	DIRERR	I	C	DIR error detector
5	DIRDA	I	C	Audio (:H) / digital (:L) switch
6	DIRFS1	I	C	Frequency select terminal bit 1
7	DIRFS0	I	C	Frequency select terminal bit 0
8	DRDY	I	C	Microcomputer I/F reception enable input
9	IPSCK	O	N	IP-BUS serial clock
10	IPOUT	O	N	IP-BUS serial data transmission
11	IPIN	I	C	IP-BUS serial data reception
12	DSPRST	O	C	DSP reset control
13	DSPDA	O	C	DSP data (:H) / address (:L) switch
14	AUDERR	I	C	Mute circuit , error detector
15	MUTE	O	C	System mute
16	BSENS	I	C	Back up sense input
17	ASENSB	I	C	Acc sense input
18	TESTIN	I	C	Test signal input
19	AMUTE	O	C	Audio mute
20	SYSPW	O	C	System power
21	DSPCK	O	C	DSP serial clock output
22	DSPOUT	O	C	DSP serial data output
23	NC	I	C	Not used
24	XA15	O	C	External ROM address output
25	IPIRQ	I	C	IP-BUS interrupt request
26	CNVSS	I	C	0V
27	RST	I	C	Reset
28,29	NC	I	C	Not used
30	XIN	I	C	Clock input
31	XOUT	O	C	Clock output
32	VSS	O	C	0V
33-40	XDT7-0	I	C	External ROM data input
41	XCE	O	C	External ROM chip enable
42-56	XA14-0	O	C	External ROM address output
57	XRD	O	C	External ROM read signal output
58-61	NC	O	C	Not used
62	ONW	I	C	Read cycle extension signal input
63	XPW	O	C	External ROM power
64	VCK2	O	C	Electronic volume 2 clock output
65	VCK1	O	C	Electronic volume 1 clock output
66	VST	O	C	Electronic volume strobe
67	VDT	O	C	Electronic volume data output
68	IPCD	O	C	IP-BUS command (:H) / data (:L) switch
69	IPRW	O	C	IP-BUS read (:L) / write (:H) switch
70	IPCS	O	C	IP-BUS chip select
71	IPRST	O	C	IP-BUS reset control
72	IPPW	O	C	IP-BUS power
73	VCC	I	C	Power supply 5V
74	VREF	O	C	0V
75	AVSS	O	C	0V
76	NC	I	C	Not used
77-79	SWDT2-0	I	C	SW data input
80	SWST2	O	C	Strobe (Fader select SW)

\*PD4453AM



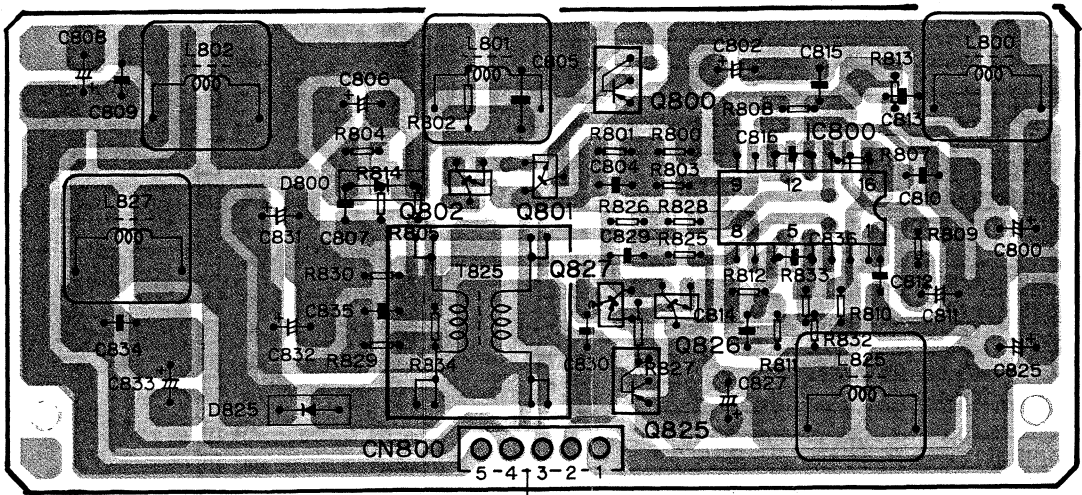
\*S-80735AN-DZ



4. CONNECTION DIAGRAM(1)

DC/DC CONVERTER(+) P.C. BOARD

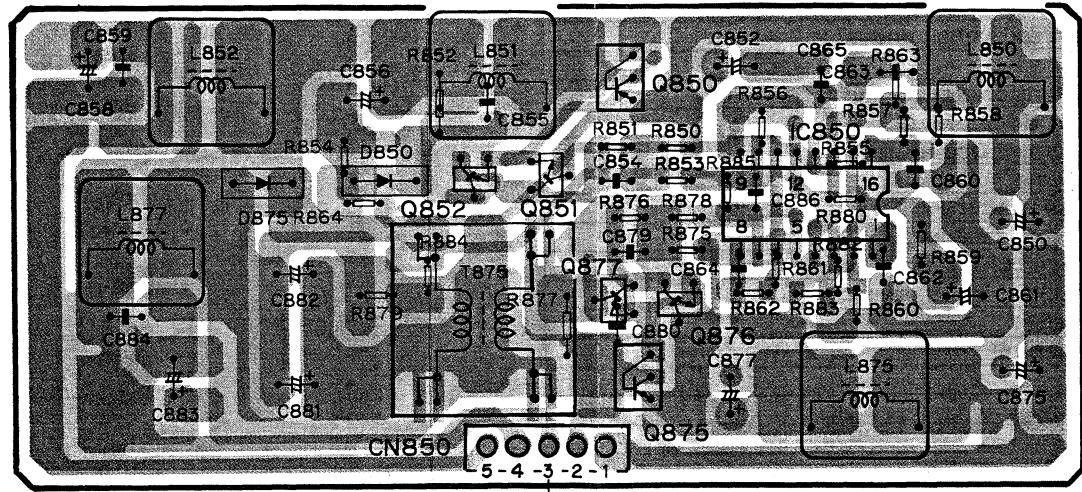
Q800  
Q827  
IC, Q Q802 Q801 Q825 Q826 IC800



AMP P.C. BOARD  
CN800

DC/DC CONVERTER(-) P.C. BOARD

Q850  
Q877  
IC, Q Q852 Q851 Q875 Q876 IC850



AMP P.C. BOARD  
CN850

Fig.10

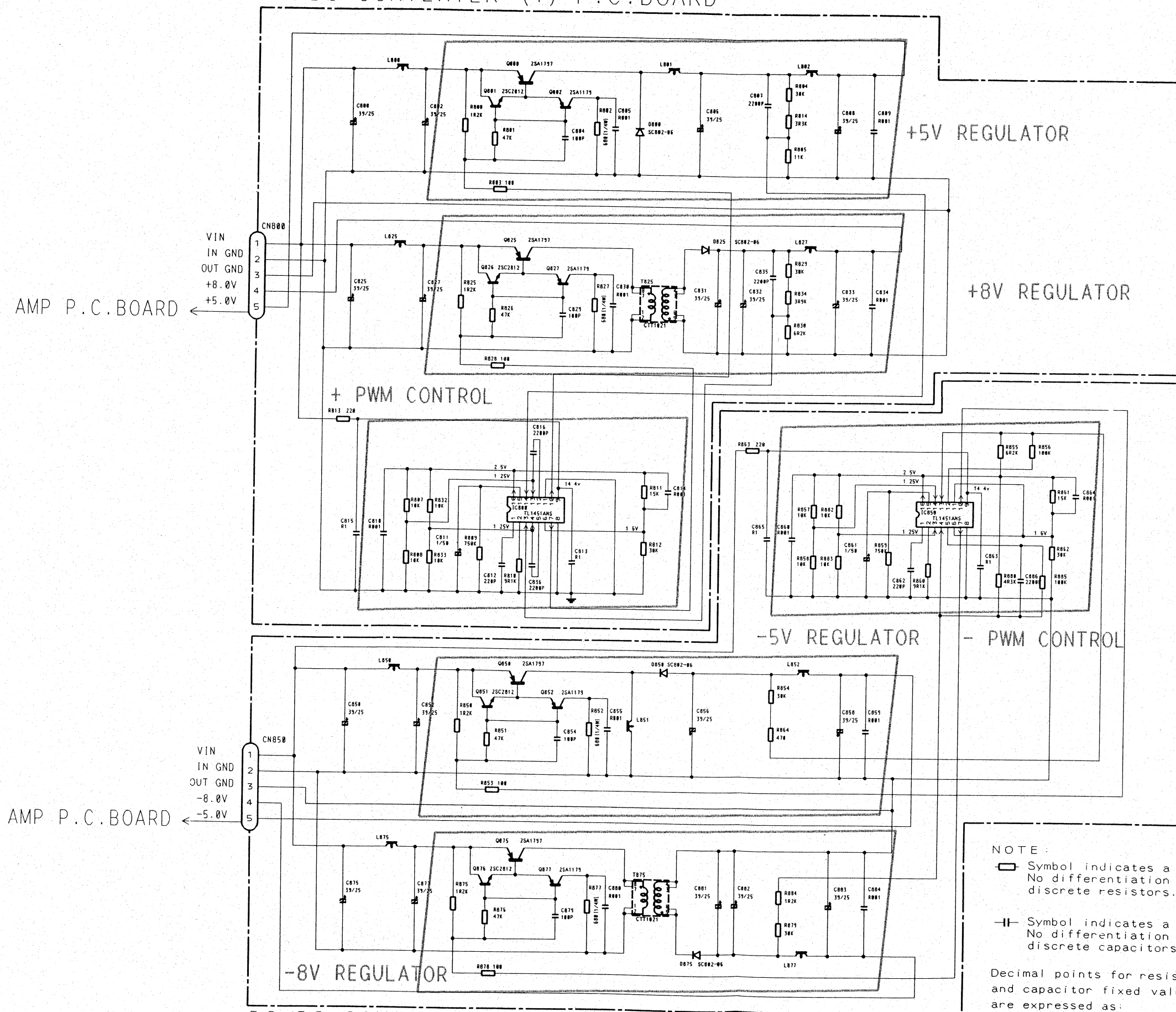






# 5. SCHEMATIC CIRCUIT DIAGRAM(1)

## DC/DC CONVERTER (+) P.C.BOARD



DC/DC CONVERTER UNIT  
Consists of  
DC/DC CONVERTER (+) P.C.BOARD  
DC/DC CONVERTER (-) P.C.BOARD

### NOTE :

□ Symbol indicates a resistor.  
No differentiation is made between chip resistors and discrete resistors.

—||— Symbol indicates a capacitor.  
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:  
2.2→2R2  
0.022→R022

Fig.11







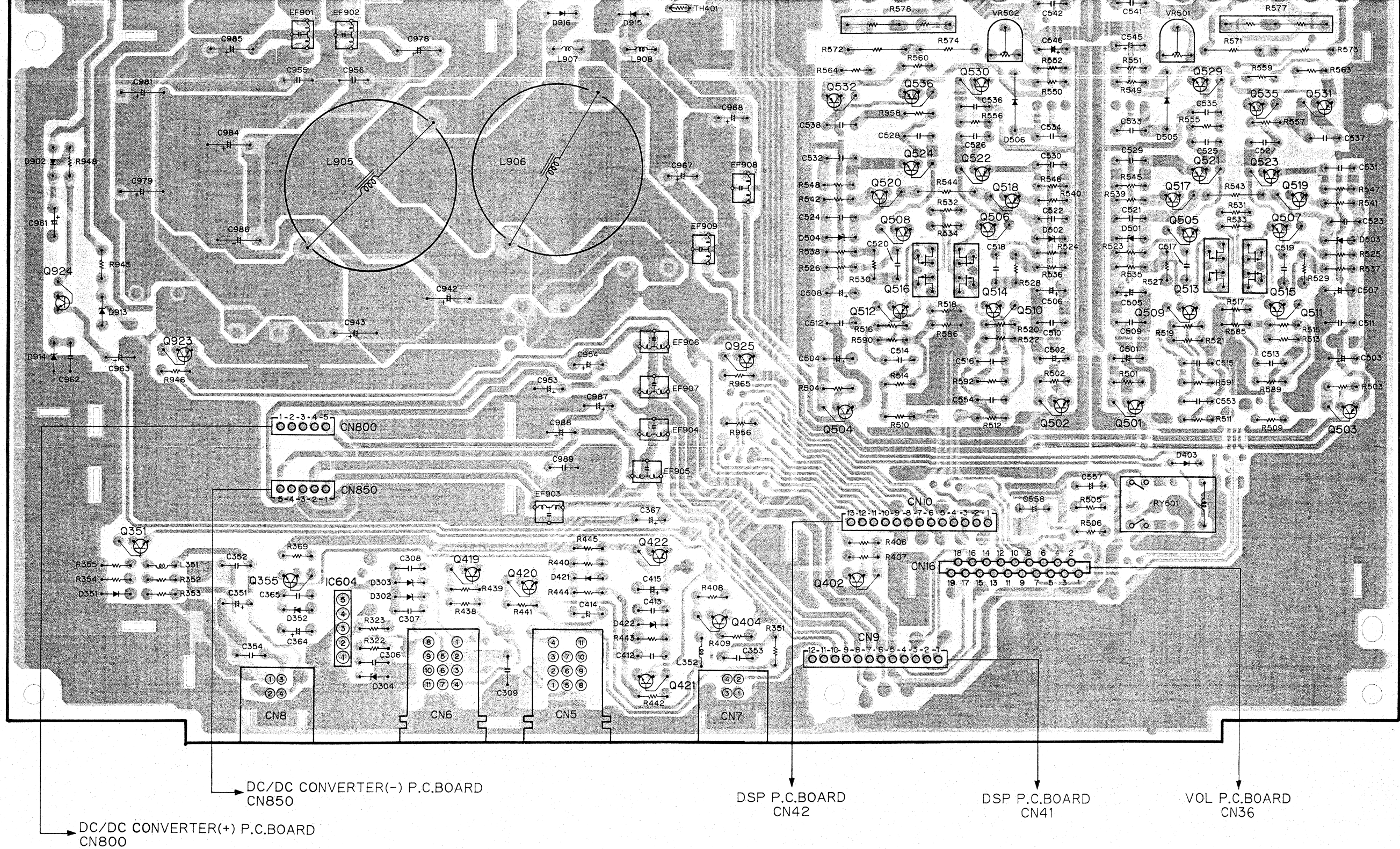
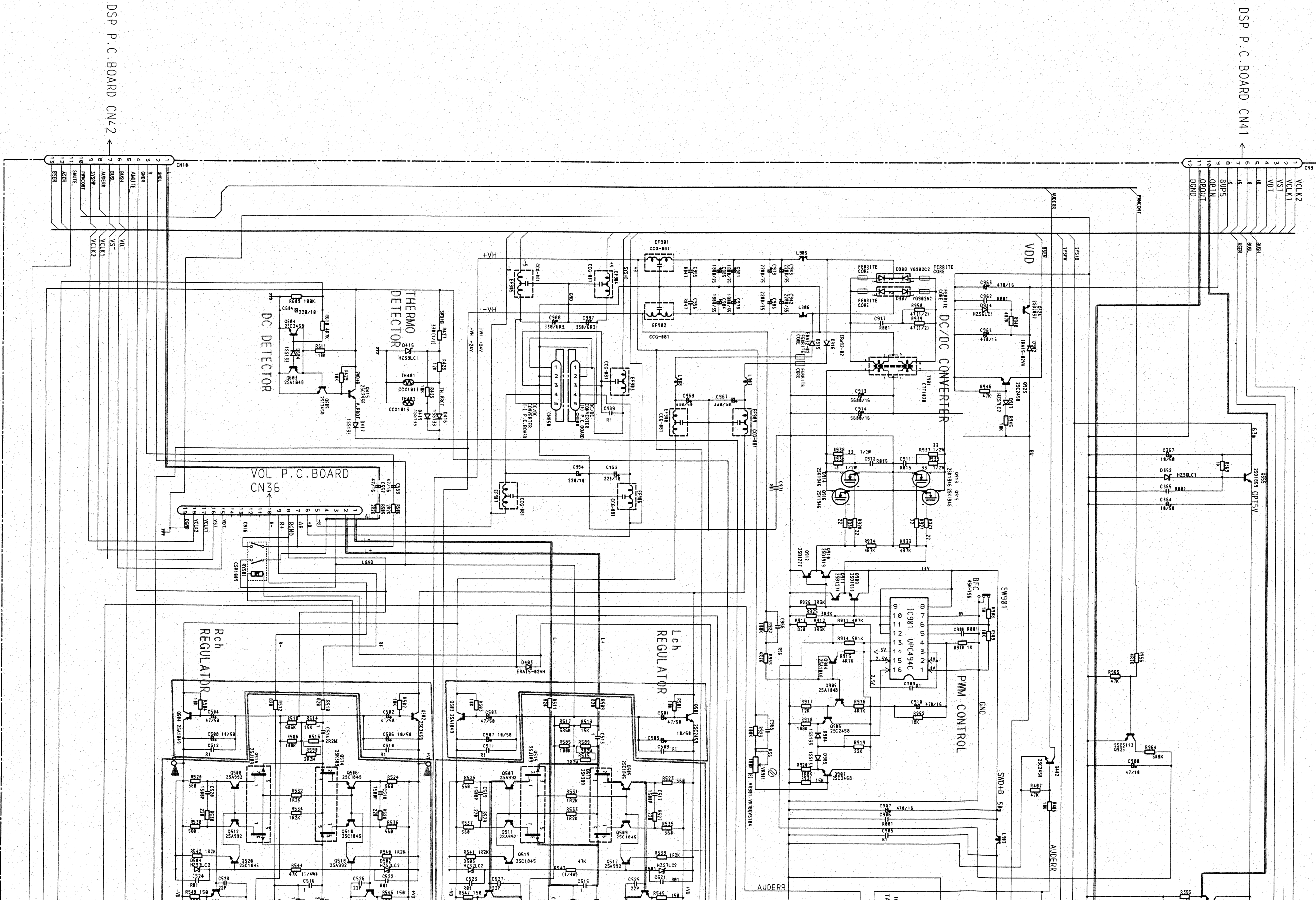


Fig.13



# 8. SCHEMATIC CIRCUIT DIAGRAM(2) (RS-A2/UC, EW)

AMP P.C. BOARD

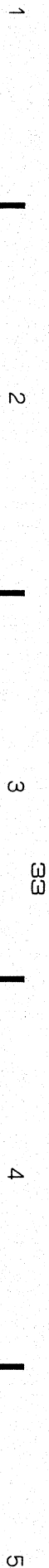


DSP P.C. BOARD CN42 ←

VOL P.C. BOARD CN36









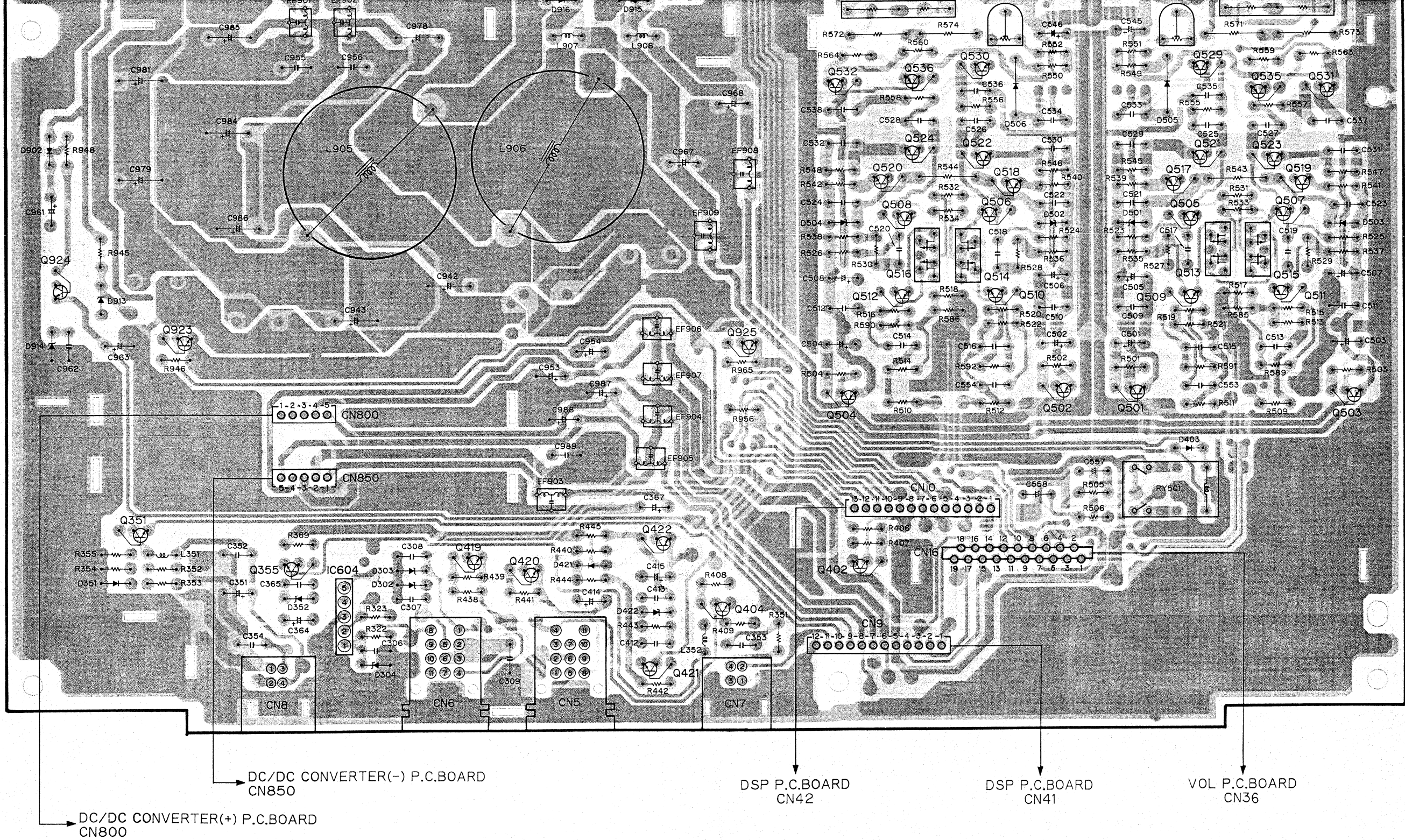
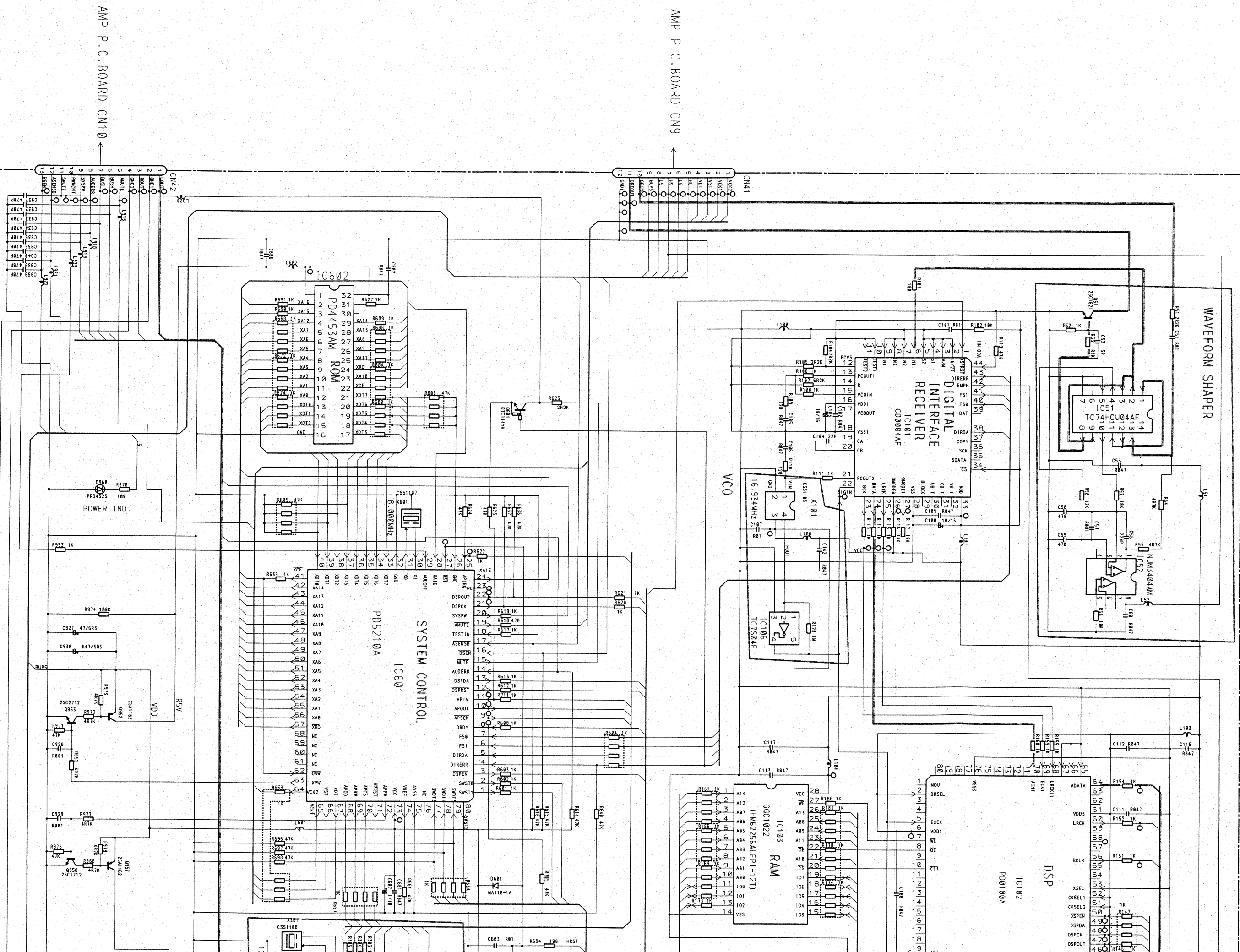


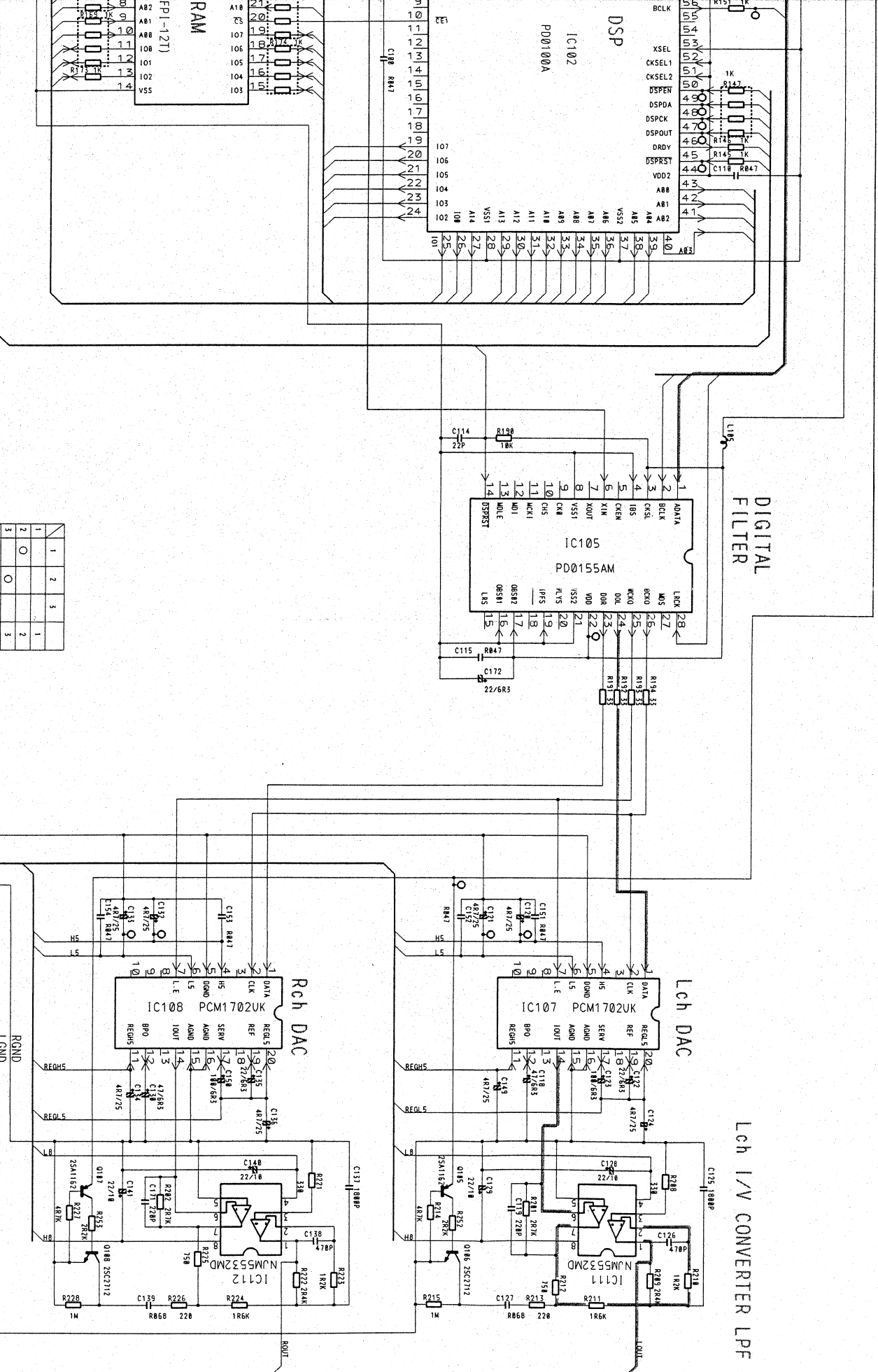
Fig.15



## 10. SCHEMATIC CIRCUIT DIAGRAM(3)

DSP P.C. BOARD





1	2	3
2	0	2
3	0	3
4	0	4
5	0	5
6	0	6
7	0	7
8	0	8

1	2	3
2	0	2
3	0	3
4	0	4
5	0	5
6	0	6
7	0	7
8	0	8

1	2	3
2	0	2
3	0	3
4	0	4
5	0	5
6	0	6
7	0	7
8	0	8



## 11. CONNECTION DIAGRAM(3)

DSP P.C. BOARD

IC603	IC601	IC103	IC107	IC51
Q953	Q601	IC105	IC105	Q106
Q952	IC602	IC111	IC112	Q105
Q958	IC301	IC106	Q107	Q955
Q957	IC302		Q956	Q51

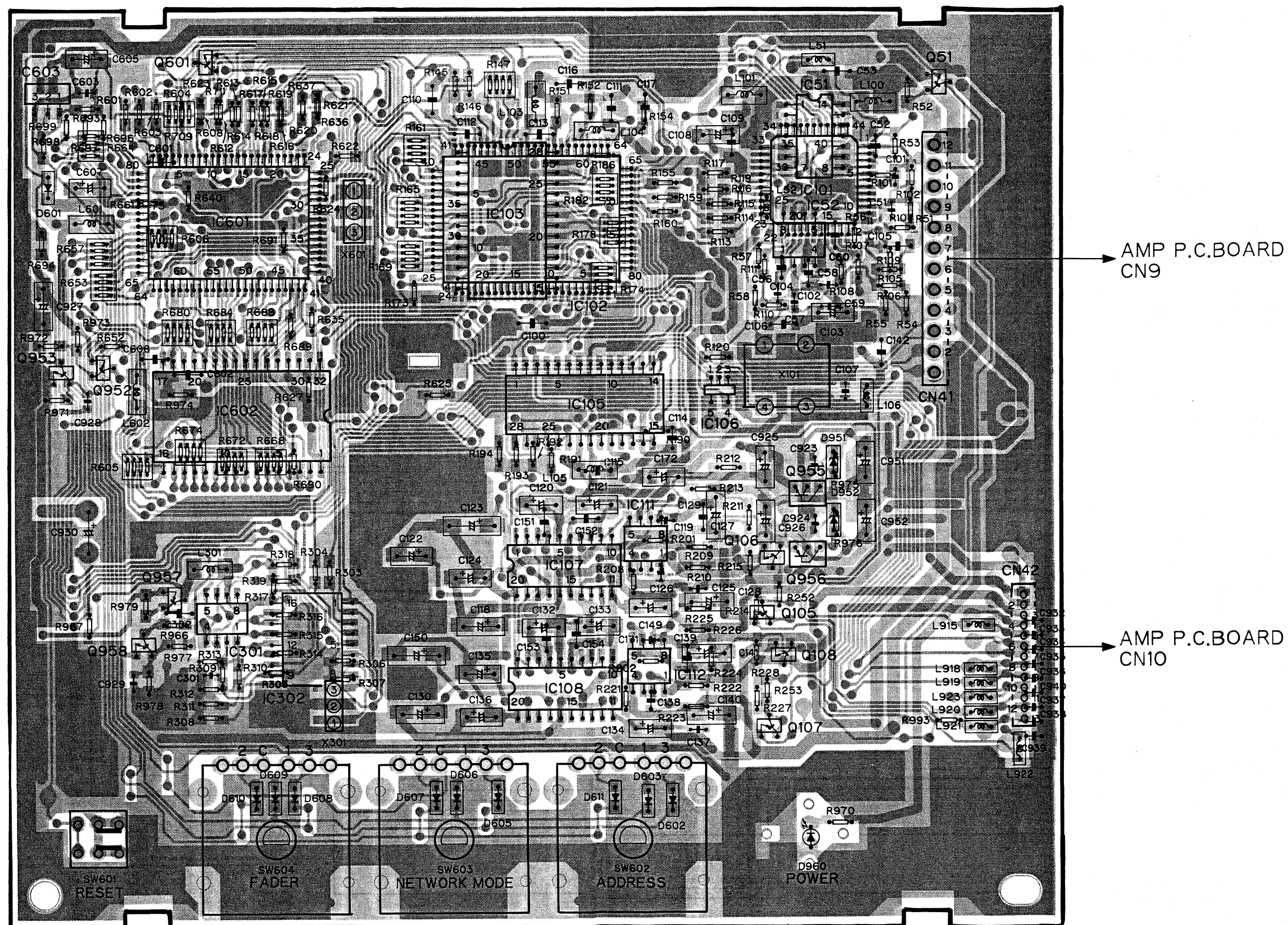


Fig.17

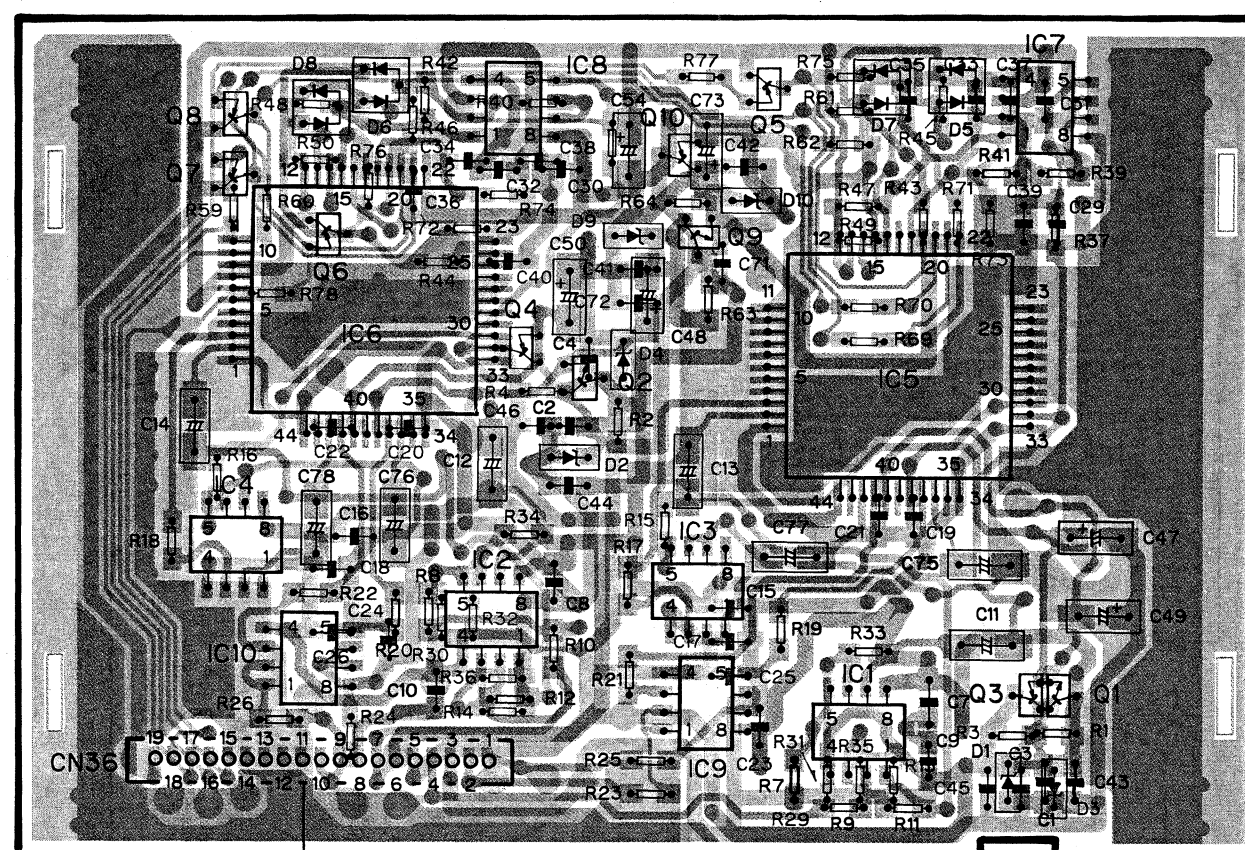




## 13. CONNECTION DIAGRAM(4)

VOL P.C. BOARD

IC, Q	Q8	Q7	Q6	IC4	IC10	IC6	IC8	Q4	IC2	Q2	Q10	IC9	Q5	IC1	IC5	Q9	IC3	IC7	Q3	Q1
-------	----	----	----	-----	------	-----	-----	----	-----	----	-----	-----	----	-----	-----	----	-----	-----	----	----



AMP P.C. BOARD  
CN16

Fig.19

# 14. EXPLODED VIEW

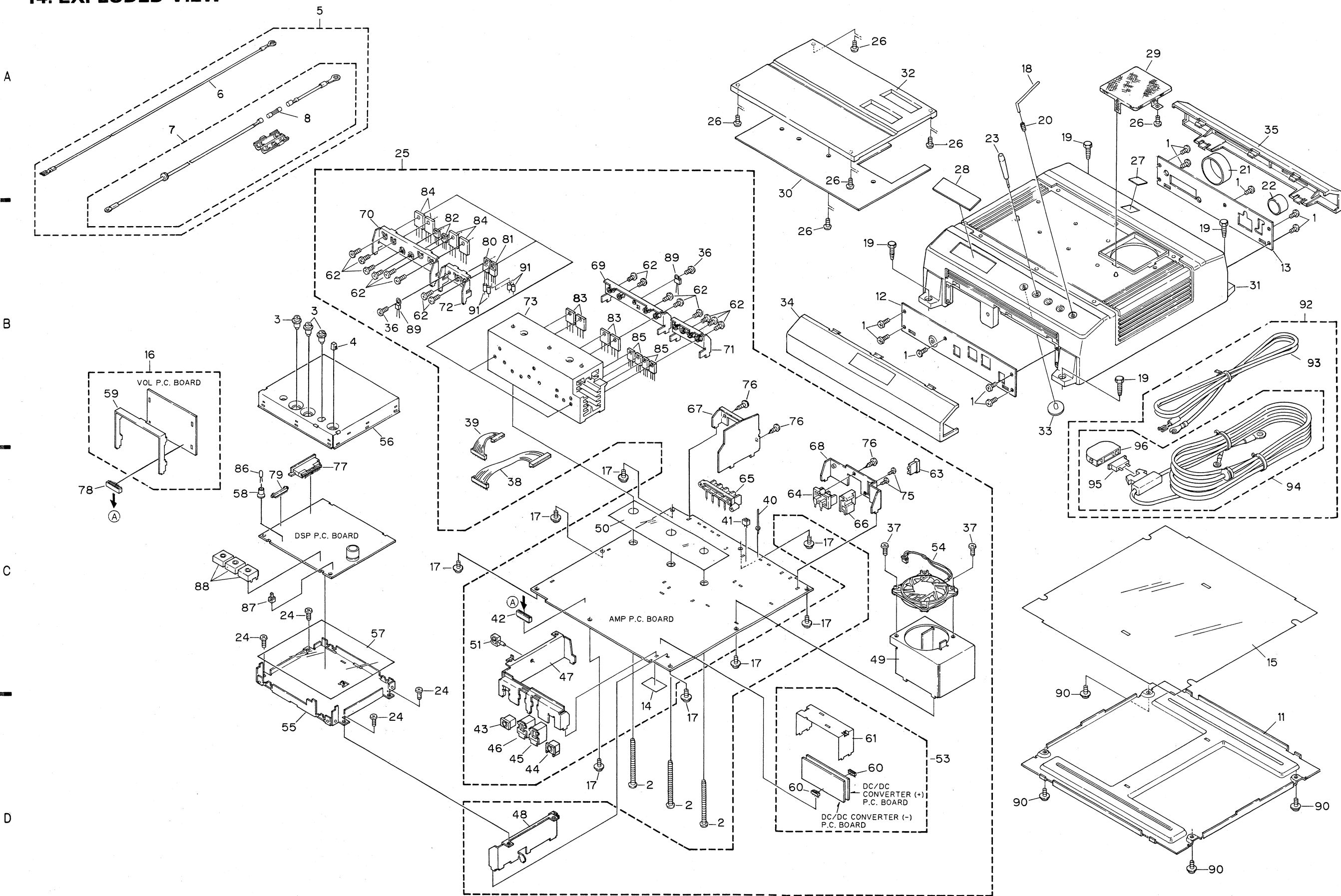


Fig.20

NOTES:  
●Parts marked by “\*” are generally unavailable because they are not in our Master Spare Parts List.  
●Parts marked by “⊙” are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

● Parts List (RS-A2/UC)

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Screw	BMS30P050FNI	41	Plug (2P) (CN3)	CKS-566	
	2	Screw	BMZ40P650FZK	42	Plug (19P) (CN16)	CKS1729	
	3	Knob	CAA1316	43	Connector (4P) (CN7)	CKS1940	
	4	Button	CAC3566	44	Connector (4P) (CN8)	CKS2601	
	5	Cord Assy	CDE3164	45	Connector (11P) (CN6)	CKS2602	
	6	Cord	CDE3025	46	Connector (11P) (CN5)	CKS2603	
	7	Cord	CDE3163	47	Holder	CNC4769	
	8	Fuse (30A)	CEK1117	48	Holder	CNC4770	
	9	.....		49	Holder	CNC4775	
	10	.....		50	Insulator	CNM3614	
	11	Case	CNB1704	51	Clamper	CNV1343	
	12	Panel	CNB1705	52	.....		
	13	Panel	CNB1708	53	DC/DC Converter Unit	CWR1041	
*	14	Spacer	CNM2983	54	Fan Motor	CXM1067	
	15	Insulator	CNM3613	55	Holder	CNC4773	
	16	VOL Unit	CXX1102	56	Case	CNC4774	
	17	Screw	BMS30P050FCU	57	Insulator	CNM3615	
	18	Shaft	CLP1100	58	Holder	CNV3459	
	19	Screw	HNC50P200FZK	59	Holder	CNC4780	
	20	Screw	ZMD30H040FBK	60	Plug (5P) (CN800,850)	CKS1606	
	21	Cover	CNS2211	61	Holder	CNC4782	
	22	Cover	CNS2227	62	Screw	BMZ30P080FCU	
	23	Driver	CNV3579	63	Fuse (30A)	CEK1140	
	24	Screw	BMZ30P050FCU	64	Terminal (2P) (CN1)	CKE1019	
	25	Amp Unit	CWH1158	65	Terminal (4P) (CN2)	CKE1018	
	26	Screw	BMZ30P080FMC	66	Auto Fuse Holder	CKR1004	
	27	Badge	CAH1399	67	Holder	CNC4771	
	28	Badge	CAH1427	68	Holder	CNC4772	
	29	Cover	CNC4781	69	Holder	CNC4776	
	30	Spacer	CNM3616	70	Holder	CNC4777	
	31	Heat Sink	CNR1270	71	Holder	CNC4778	
	32	Heat Sink	CNR1281	72	Holder	CNC4779	
	33	Lens	CNS2053	73	Sub Heat Sink	CNR1272	
	34	Cover	CNS2654	74	.....		
	35	Cover	CNS2655	75	Screw	PPZ20P080FZK	
	36	Screw	BMZ30P080FMC	76	Screw	PPZ30P100FZK	
	37	Screw (M3×10)	CBA1170	77	Plug (12P) (CN41)	CKS2489	
	38	Connector (12P) (CN9)	CDE3850	78	Connector (19P) (CN36)	CKS1710	
	39	Connector (13P) (CN10)	CDE3851	79	Connector (13P) (CN42)	CKS2202	
	40	Clamper	CEF1005	80	Diode (D907)	YG902N2	

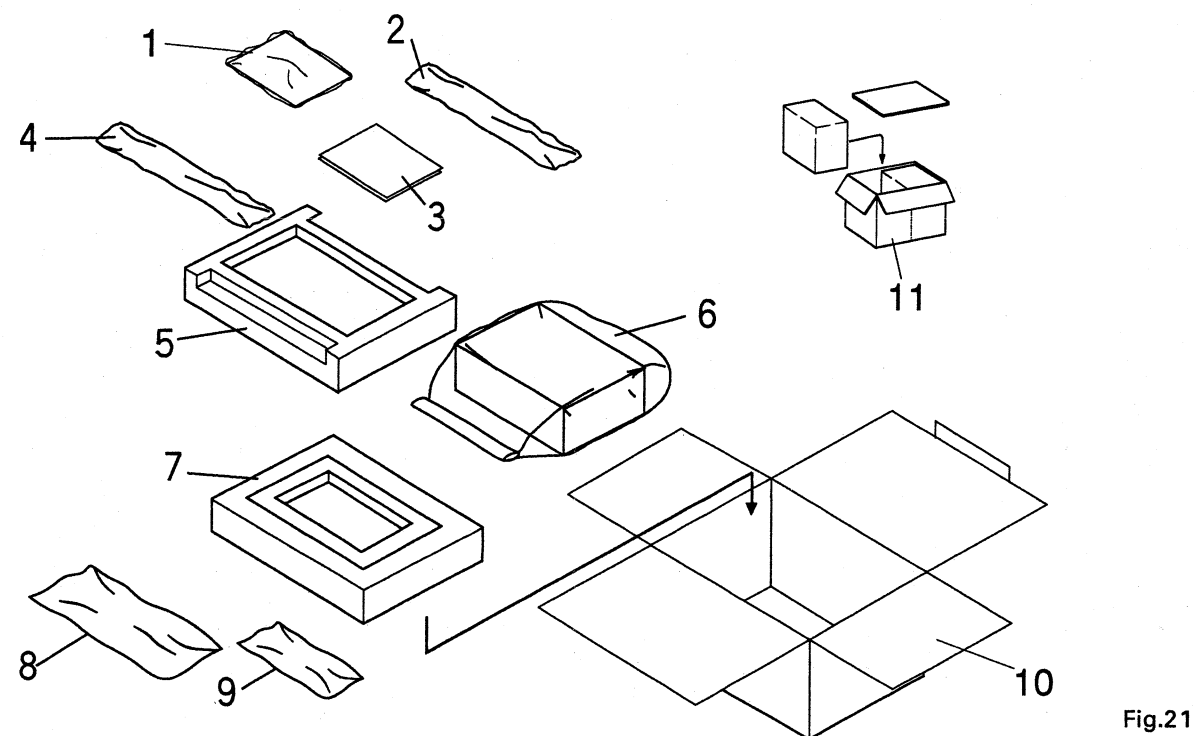
Mark	No.	Description	Part No.
	81	Diode (D908)	YG902C2
	82	Transistor (Q525,Q526)	2SC1568
	83	Transistor (Q537-Q540)	2SC4388
	84	Transistor (Q541-Q544)	2SA1673
	85	FET (Q913-Q916)	2SK1946
	86	Diode (D960)	PR3432S
	87	Switch (SW601)	CSG-249
	88	Switch (SW602-SW604)	CSD1021
	89	Thermistor (TH401,402)	CCX1013
	90	Screw	BMS30P050FNI
	91	Ferrite Core	CTF1294
	92-96	.....	

•The RS-A2/EW, RS-A1/UC and RS-A1/EW Parts Lists enumerate the parts which differ from those enumerated in the RS-A2/UC Parts List only. The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly. The RS-A2/UC Parts List is given on page 47.

	RS-A2/UC	RS-A2/EW	RS-A1/UC	RS-A1/EW
Mark No. Description	Part No.	Part No.	Part No.	Part No.
1 Screw	BMS30P050FNI	BMZ30P050FZK	BMZ30P050FZK	BMZ30P050FZK
5 Cord Assy	CDE3164	.....	CDE3164	.....
6 Cord	CDE3025	.....	CDE3025	.....
7 Cord	CDE3163	.....	CDE3163	.....
8 Fuse (30A)	CEK1117	.....	CEK1117	.....
13 Panel	CNB1708	CNB1708	CNB1706	CNB1706
17 Screw	BMS30P050FCU	PMS30P050FCU	PMS30P050FCU	PMS30P050FCU
25 Amp Unit	CWH1158	CWH1158	CWH1157	CWH1157
28 Badge	CAH1427	CAH1426	CAH1427	CAH1426
32 Heat Sink	CNR1281	CNR1280	CNR1279	CNR1278
63 Fuse	CEK1140 (30A)	CEK1140 (30A)	.....	.....
* 63 Fuse	.....	.....	CEK1138 (20A)	CEK1138 (20A)
92 Cord Assy	.....	CDE3032	.....	CDE3032
93 Cord	.....	CDE3025	.....	CDE3025
94 Cord	.....	CDE3027	.....	CDE3027
95 Fuse (30A)	.....	CEK1140	.....	CEK1140
96 Auto Fuse Holder	.....	CKR1006	.....	CKR1006

•When you exchange the thermistor of No. 89, use the screw of No. 36 to install the thermistor to the sub heat sink.

15. PACKING METHOD



● Parts List

\*:Non spare part

Mark	No.	Description	Part No.
*	1	Polyethylene Bag	E36-634
	1-1	Owner's Manual (UC)	CRD1707
		Owner's Manual (EW)	CRD1662
		Owner's Manual (EW)	CRD1663
*	1-2	Warranty Card (UC)	CRY1053
*	1-3	Caution Card (RS-A1/UC)	CRP1128
		Caution Card (RS-A1/EW)	CRP1127
	2	Cover	CEG1146
	2-1	Cover	CNS2654
	3	Card (EW)	CRY-062
	4	Cover	CEG1146
	4-1	Cover	CNS2655
	5	Protector	CHP1580
	6	Cover	CEG1145
	7	Protector	CHP1581
	8	Accessory Assy	CEA1855
	8-1	Screw Assy	CEA1824
	8-1-1	Screw (x4)	HNC50P200FZK
*	8-1-2	Polyethylene Bag	E36-613
	8-1-3	Screw	ZMD30H040FBK
	8-1-4	Shaft	CLP1100
*	8-2	Polyethylene Bag	CEG1101
	8-3	Cover	CNS2211
	8-4	Cover	CNS2227
	8-5	Driver	CNV3579

Mark	No.	Description	Part No.
	9	Cord Assy (UC)	CDE3164
		Cord Assy (EW)	CDE3032
	9-1	Cord (Earth)	CDE3025
	9-2	Cord (Battery Power) (UC)	CDE3163
		Cord (Battery Power) (EW)	CDE3027
*	9-3	Polyethylene Bag	CEG-145
	10	Carton (RS-A1/UC)	CHG2333
		Carton (RS-A1/EW)	CHG2334
		Carton (RS-A2/UC)	CHG2336
		Carton (RS-A2/EW)	CHG2337
	11	Contain Box (RS-A1/UC)	CHL2333
		Contain Box (RS-A1/EW)	CHL2333
		Contain Box (RS-A2/UC)	CHL2336
		Contain Box (RS-A2/EW)	CHL2337

1-1 Owner's Manual

Part No.	Model	Language
CRD1707	RS-A1,A2/UC	English,French
CRD1662	RS-A1,A2/EW	English,Italian,French,German
CRD1663	RS-A1,A2/EW	Dutch,Spanish,Swedish

16. ELECTRICAL PARTS LIST

NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/OSOOOJ,RS1/OOSOOOJ

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

====Circuit Symbol & No. Part Name=====	Part No.
*RS-A2/UC,EW	
Unit Number :	
Unit Name : Amp P.C.Board	
MISCELLANEOUS	
IC 401	TA8194Z
IC 604	M51946BL
IC 901	UPC494C
Q 351 402 403 415 418 419 420 421 605	2SC2458
Q 355 422	2SD1859
Q 401	2SB1238
Q 404	2SC2458
Q 417 902	2SC3113
Q 501 502	2SC2459
Q 503 504	2SA1049
Q 505 506 509 510 519 520	2SC1845
Q 507 508 511 512 517 518	2SA992
Q 513 514	2SK389
Q 515 516	2SJ109
Q 521 522 531 532	2SA1145
Q 523 524 529 530	2SC2705
Q 533 534	2SC3298
Q 535 536	2SA1306
Q 603	2SA1048
Q 604	2SC2458
Q 901	2SB1243
Q 903 924	2SD2037
Q 904 905	2SA1048
Q 906 907 923	2SC2458
Q 909 910	2SD1919
Q 911 912	2SB1277
Q 925	2SC3113
D 302 303	RD24JSB2
D 304	RD16JSB3
D 351 416 417 419 421 604 904	1SS133
D 352 402 914	HZS6LC1
D 401 403 420 902	ERA15-02VH
D 404	HZS18JB3
D 415	HZS9LC1
D 422	RD12JSB1
D 501 502 503 504 913	HZS7LC2
D 505 506	SV04YS
D 901	RM4Z
D 903	HZS12LA3
D 905	1SS133
D 915 916	ERA92-02
L 351	LAU1R5K
L 352	LAU1R0M
L 901	CTH1111
L 903	CTF-113
	Inductor
	Ferri-Inductor
	Choke Coil
	Coil

====Circuit Symbol & No. Part Name=====	Part No.
L 905 906	Choke Coil
L 907 908	Coil
T 901	Transformer
RY 501	Relay
RY 503	Relay
TH 401 402	Thermistor
SW901	Switch
VR 501 502	Semi-fixed 470Ω(B)
VR 901	Semi-fixed 100kΩ(B)
EF 901 902 903 904 905	Capacitor
EF 906 907 908 909	Capacitor
Q 525 526	Fan Motor
Q 537 538 539 540	Ferrite Core
Q 541 542 543 544	FET
Q 913 914 915 916	FET
D 907	YG902N2
D 908	YG902C2
FU 901	Fuse 30A
RESISTORS	
R 322	RD1/4PS473JL
R 323	RD1/4PS224JL
R 351	RD1/4PS391JL
R 352 353 369 432 433 910	RD1/4PS102JL
R 354 407 421 422 437 438 440 448 902 946	RD1/4PS473JL
R 355	RD1/4PS181JL
R 401 904	RD1/4PS221JL
R 402	RD1/4PS152JL
R 404 405 406 429 434 435 436 443	RD1/4PS103JL
R 408	RD1/4PS103JL
R 409	RD1/4PS473JL
R 427	RD1/2PS331JL
R 428 917	RD1/4PS123JL
R 439 441 609 922 923	RD1/4PS104JL
R 442	RD1/4PS222JL
R 444 445 447 501 502 503 504 611 909 945	RD1/4PS103JL
R 446	RD1/4PS152JL
R 505 506	RDR1/6PU222J
R 509 510	RDR1/6PU821J
R 511 512	RDR1/6PU821J
R 513 514 521 522	RDR1/6PU153J
R 515 516 519 520 589 590 591 592	RDR1/6PU225J
R 517 518 579 580	RDR1/6PU562J
R 523 524 525 526 535 536 537 538 559 560	RDR1/6PU561J
R 527 528 529 530	RDR1/6PU221J
R 531 532 533 534 539 540 541 542 549 550	RDR1/6PU122J
R 543 544	RDR1/4PM473J
R 545 546 547 548	RDR1/6PU151J
R 551 552	RDR1/6PU621J
R 555 556 557 558	RDR1/6PU101J

====Circuit Symbol &amp; No. Part Name=====

Part No.

R 561 562 563 564  
 R 565 566  
 R 567 568 569 570 571 572 573 574  
 R 575 576 577 578 0.22Ω/5Wx2  
 R 583 584

RDR1/6PU470J  
 RDR1/4PM121J  
 RDR1/4PM100J  
 CCN1071  
 RN1P4R7JL

R 585 586 587 588  
 R 610 901 911 915 916 933 934 948 955  
 R 903 951  
 R 905  
 R 908

RDR1/6PU104J  
 RD1/4PS472JL  
 RD1/2PS221JL  
 RD1/4PS331JL  
 RD1/4PS105JL

R 912 925 926  
 R 913  
 R 914  
 R 918 920  
 R 919

RD1/4PS332JL  
 RD1/4PS821JL  
 RD1/4PS512JL  
 RD1/4PS182JL  
 RD1/4PS223JL

R 921  
 R 927 928 929 930  
 R 935 936 937 938  
 R 939 950  
 R 952

RD1/4PS153JL  
 RD1/4PS220JL  
 RS1/2P330JL  
 RS1/2P470JL  
 RD1/4PS183JL

R 956  
 R 964  
 R 965

RD1/4PS472JL  
 RD1/4PS682JL  
 RD1/4PS473JL

## CAPACITORS

C 306  
 C 307 308 365 411 412 413 902 906 962  
 C 351  
 C 352 353 354 509 510 511 512 533 534  
 C 364 367

CKPYB102K50L  
 CKPYB102K50L  
 CEAS330M10  
 CFTXA104J50  
 CEAS100M50

C 401 907 910 961 963 977 470μF/16V  
 C 402  
 C 403  
 C 404 539 540 541 542  
 C 414

CCH-114  
 CEAS4R7M35  
 CEAS100M16  
 CFTXA473J50  
 CEAS470M16

C 415 470μF/16V  
 C 501 502 503 504  
 C 505 506 507 508  
 C 513 514 515 516 901  
 C 517 518 519 520

CCH-114  
 CEKA470M50  
 CEKA100M50  
 CFTNA105J50  
 CQPA152G2A

C 521 522 523 524 971  
 C 525 526 527 528  
 C 529 530 531 532  
 C 535 536 537 538  
 C 543 544 545 546

CFTXA103J50  
 CMA220J2H  
 CFTXA103J50  
 CMA101J2H  
 CEKA101M35

C 547 548  
 C 549 550 908 917  
 C 553 554  
 C 555 556  
 C 557 558 47μF/16V

CFTXA104J50  
 CQPA102G2A  
 CMA680J2H  
 CQPA221G2A  
 CCH1173

C 604 220μF/10V  
 C 903 904 905 909 989  
 C 911 912  
 C 913 914 976 5600μF/16V  
 C 942 943 979 986

CCH1036  
 CFTXA104J50  
 CFTXA153J50  
 CCH1156  
 CEKA222M35

C 953 954  
 C 955 956  
 C 964  
 C 965 966  
 C 967 968 330μF/50V

CEKA221M10  
 CFTXA473J50  
 CFTXA474J50  
 CFTXA564J50  
 CCH1158

C 978 981 984 985 1800μF/35V  
 C 980  
 C 987 988

CCH1157  
 CEAS470M10  
 CEKA331M6R3

====Circuit Symbol &amp; No. Part Name=====

Part No.

## DC/DC Converter Unit

Consists of

- DC/DC Converter (+) P.C.Board
- DC/DC Converter (-) P.C.Board

Unit Number : CWR1041

Unit Name : DC/DC Converter Unit

## MISCELLANEOUS

IC 800 850  
 Q 800 825 850 875  
 Q 801 826 851 876  
 Q 802 827 852 877  
 D 800 825 850 875

TL1451ANS  
 2SA1797  
 2SC2812  
 2SA1179  
 SC802-06

L 800 801 802 Choke Coil  
 L 825 827 850 851 852 875 877 Choke Coil  
 T 825 875 Transformer

CTH1123  
 CTH1124  
 CTT1021

## RESISTORS

R 800 825 850 875  
 R 801 851  
 R 802 827 852 877  
 R 803 828 853 878  
 R 804 829 854 879

RS1/10S122J  
 RS1/10S473J  
 RS1/4S681J  
 RS1/10S101J  
 RN1/10SE303D

R 805  
 R 807 808 832 857 858 882  
 R 809 859  
 R 810 860  
 R 811 861

RN1/10SE113D  
 RN1/10SE103D  
 RS1/10S754J  
 RN1/10SE912D  
 RN1/10SE153D

R 812 862  
 R 813 863  
 R 814  
 R 826 876  
 R 830 855

RN1/10SE303D  
 RS1/10S221J  
 RN1/10SE332D  
 RS1/10S473J  
 RN1/10SE622D

R 833 883  
 R 834  
 R 856  
 R 864  
 R 880

RN1/10SE103D  
 RN1/10SE392D  
 RS1/10S104J  
 RN1/10SE471D  
 RN1/10SE432D

R 884  
 R 885

RN1/10SE122D  
 RS1/10S104J

## CAPACITORS

C 800 802 806 808 825 39μF/25V  
 C 827 831 832 833 850 39μF/25V  
 C 804 854  
 C 805 809 814 830 834 855 859 864 880 884  
 C 807 816 835 836 886

CCH1162  
 CCH1162  
 CCSQCH101J50  
 CKSQYB102K50  
 CKSQYB222K50

C 810 860  
 C 811 861  
 C 812 862  
 C 813 863  
 C 815 865

CKSQYB102K50  
 CEHAS010M50  
 CCSQCH221J50  
 CKSQYB104K25  
 CKSQYF104Z25

C 829 879  
 C 852 856 858 875 39μF/25V  
 C 877 881 882 883 39μF/25V

CCSQCH101J50  
 CCH1162  
 CCH1162

====Circuit Symbol & No. Part Name=====

Part No.

## DSP-VOL Unit

Consists of

- DSP P.C.Board
- VOL P.C.Board

Unit Number :

Unit Name : DSP-VOL Unit

## MISCELLANEOUS

IC 1 2 111 112  
IC 3 4 9 10  
IC 5 6  
IC 7 8  
IC 51

NJM5532MD  
NJM2082M  
TC9233F  
NJM4558M  
TC74HCU04AF

IC 52  
IC 101  
IC 102  
IC 103 (HM62256ALFPI-12T)  
IC 105

NJM3404AM  
CD0004AF  
PD0100A  
GGC1022  
PD0155AM

IC 106  
IC 107 108  
IC 301  
IC 302  
IC 601

TC7S04F  
PCM1702UK  
PA0051AM  
PD4308AM  
PD5210A

IC 602  
IC 603  
Q 1 2 9 953 958  
Q 3 4 5 6 10  
Q 7 8 105 107 952 957

PD4453AM  
S-80735AN-DZ  
2SC2712  
2SA1162  
2SA1162

Q 51  
Q 106 108  
Q 601  
Q 955  
Q 956

2SC1621  
2SC2712  
DTC114YK  
2SC2882  
2SB1132

D 1 2 951 952  
D 3 4 9 10  
D 5 6 7 8  
D 601  
D 602 603 605 606 607 608 609 610 611

MA8062L  
MA8062L  
MA153-MC  
MA110-1A  
MA110-1A

D 960  
L 51 106 915 918 919 920 921 Inductor  
L 52 Inductor  
L 100 Inductor  
L 101 105 301 Inductor

PR3432S  
CTF1295  
CTF1295  
LCTA2R2J3225  
LCTA1R0K3225

L 103 601 Inductor  
L 104 602 Inductor  
L 922 923 Inductor  
X 101 VCO 16.934MHz  
X 301 Ceramic Resonator 12.583MHz

LCTA3R3J3225  
LCTA1R0K3225  
CTF1295  
CSS1103  
CSS1108

X 601 Ceramic Resonator 8.000MHz  
SW601 Switch  
SW602 603 604 Switch

CSS1107  
CSG-249  
CSD1021

## RESISTORS

R 1 2 17 18 19 20 21 22 52 63 RS1/10S102J  
R 3 4 15 16 47 48 59 60 64 77 RS1/10S102J  
R 7 8 9 10 RS1/10S682J  
R 11 12 33 34 102 116 RS1/10S103J  
R 13 14 29 30 56 RS1/10S103J

R 23 25 26 RS1/10S181J  
R 24 RS1/10S181J  
R 31 32 35 36 RS1/10S682J  
R 37 614 971 978 RS1/10S473J  
R 38 119 308 311 312 313 317 615 616 623 RS1/10S473J

====Circuit Symbol & No. Part Name=====

Part No.

R 39 652 966 972 973 977 979  
R 40 43 44 45 46 214 227  
R 41 42 120  
R 49 50 73 74 967 974  
R 51 105 252

RS1/10S472J  
RS1/10S472J  
RS1/10S105J  
RS1/10S104J  
RS1/10S222J

R 53  
R 54  
R 55  
R 57 61 62 71 72 75 76 190 306  
R 58

RS1/10S112J  
RS1/10S472J  
RS1/10S472J  
RS1/10S103J  
RS1/10S123J

R 69 70 101 970  
R 78 173 186 305 314 315 316 612 613  
R 104 253  
R 106 108 111 113 114 115 145 146 151 152  
R 107

RS1/10S101J  
RS1/10S102J  
RS1/10S222J  
RS1/10S102J  
RS1/10S622J

R 109 110  
R 117 693 699  
R 147 604 653 657 664 680 684 688  
R 154 155 159 160 303 304 309 310 601 602  
R 161 165 169 174 178 182 668 672 674

RS1/10S121J  
RS1/10S103J  
RA4C102J  
RS1/10S102J  
RA4C102J

R 191 192 193 194  
R 201 202  
R 208 221  
R 209 222  
R 210 223

RS1/10S330J  
RN1/10SE272D  
RS1/10S331J  
RS1/10S242J  
RS1/10S122J

R 211 224  
R 212 225  
R 213 226  
R 215 228  
R 307

RS1/10S162J  
RS1/10S751J  
RS1/10S221J  
RS1/10S105J  
RS1/10S103J

R 318 319 694  
R 603 608 617 619 620 621 622 635 689 711  
R 605 606  
R 618  
R 624 636 637 640 661 696 697 698 709

RS1/10S101J  
RS1/10S102J  
RA4C473J  
RS1/10S471J  
RS1/10S473J

R 625  
R 627 690 691 975 976 993

RS1/10S222J  
RS1/10S102J

## CAPACITORS

C 1 2  
C 3 4 41 42  
C 7 8 9 10 30 32  
C 11 12 13 14 10μF/10V  
C 15 16 17 18 19 20 21 22 23 24

CKSQYB102K50  
CKSQYB102K50  
CKSQYB104K25  
CCH1171  
CKSQYB104K25

C 25 26 29 31 37 38 39 40  
C 33 34  
C 35 36  
C 43 44  
C 45 46

CKSQYB104K25  
CKSQYB273K50  
CCS101J50  
CKSQYB103K50  
CKSQYB103K50

C 47 48 49 50  
C 51 923 924  
C 52  
C 53 60 109 112 113 115 116 117 151 152  
C 54 73 122 135 172

CEV220M6R3  
CFHSQ103J16  
CCSQCH150J50  
CFHS473J16  
CECV220M6R3

C 56  
C 57 301  
C 58 59  
C 71 72  
C 75 76 77 78 10μF/10V

CFHSQ221J50  
CFHSQ102J50  
CFHSQ471J50  
CKSQYB103K50  
CCH1171

C 100 102 105 106 110 111 142  
C 101 107 603  
C 103 108 605 925 926 951 952  
C 104 114  
C 118 130 927

CFHS473J16  
CFHSQ103J16  
CECV100M16  
CCSQCH220J50  
CECV470M6R3

====Circuit Symbol & No. Part Name=====	Part No.
C 119 171	CFHSQ221J50
C 120 121 124 132 133 134 136 149	CECV4R7M25
C 123 150	CECV101M6R3
C 125 137	CFHSQ182J50
C 126 138	CFHSQ471J50
C 127 139	CFHSP683J16
C 128 129 140 141	CECV220M10
C 153 154 302 601 602 606	CFHS473J16
C 607	CECV010M50
C 928 929	CFHSQ102J50
C 930	0.47μF/5.5V CCL1016
C 932 933 934 935 936 937 938 939 940	CFHSQ471J50
MISCELLANEOUS	
Fuse 30A	CEK1140

- The RS-A1/UC,EW Parts List enumerates the parts which differ from those for the RS-A2/UC,EW only.
- The parts other than those enumerated in the RS-A1/UC,EW Parts List are identical with those in the RS-A2/UC,EW Parts List, to which you are requested to refer, accordingly.
- The RS-A2/UC,EW Parts List is given on page 50.

Amp P.C.Board

Circuit Symbol & No.	RS-A2/UC,EW	RS-A1/UC,EW
	Part No.	Part No.
T901	CTT1020	CTT1019
R501,502,503,504	RD1/4PS103JL	RD1/4PS472JL
R509,510,511,512	RDR1/6PU821J	RDR1/6PU102J
R517,518,579,580	RDR1/6PU562J	RDR1/6PU392J
R543,544	RDR1/4PM473J	RDR1/4PM183J
R549,550	RDR1/6PU122J	RDR1/6PU162J
R551,552	RDR1/6PU681J	RDR1/6PU621J
R922,923	RD1/4PS104JL	RD1/4PS473JL
R955	RD1/4PS472JL	RD1/4PS103JL
R964	RD1/4PS682JL	RD1/4PS202JL
C501,502,503,504	CEKA470M50	CEKA101M25
C505,506,507,508	CEKA100M50	CEKA470M25
C543,544,545,546	CEKA101M35	CEKA221M25
C942,943,979,986	CEKA222M35	CEKA332M25
C965,966	CFTXA564J50	CFTNA105J50
FU901	CEK1140	.....
FU901	.....	CEK1138



17. CIRCUIT DESCRIPTION

17.1 ELECTRONIC VOLUME

Input signals from the D/A converter are converted from unbalance to balance by IC1 (IC2: Rch). Two kinds of signals of positive and negative phases are input into the electronic volume IC5 (IC6: Rch). IC5 is an electronic volume with two channels and acts to set positive- and negative-phase signals at a desired level. The output of the electronic volume passes through the buffer amplifier IC9 (IC10: Rch) before being input into the power amplifier section.

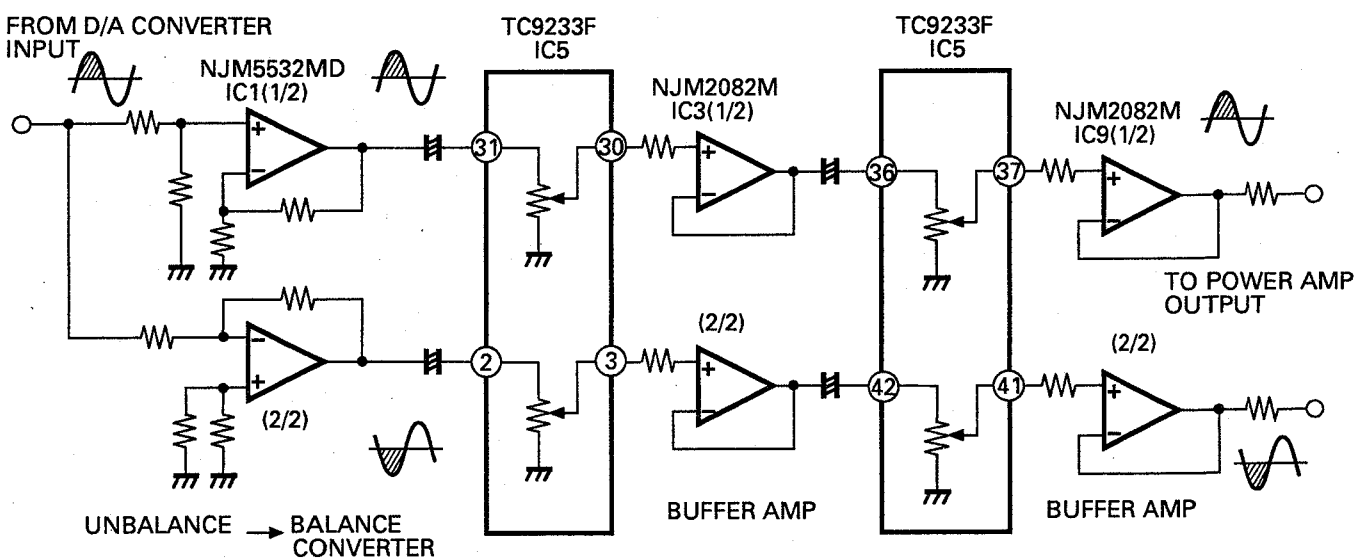


Fig.22

## 17.2 SUPPLY VOLTAGE CONTROL OF POWER OUTPUT STAGE

Because RS-A1 is an amplifier of pure Class A, there are large amounts of idling currents in the output stage of the power amplifier. Thus, the current consumption of the primary circuit of the DC/DC converter, namely, the current consumption of the battery is large. In order to reduce the burden of the battery, the RS-A1 contains a circuit that lessens the supply voltage of the power amplifier output stage when the volume is less, resulting in the decrease in the current consumption of the battery. Operation of this circuit is described below. Control is performed, depending on the step number of the volume. When the volume is tuned to step 0 to 14, the voltage is set low; and to 15 and above, the voltage is set high. (When EQ or BASS-TRE control is performed in the case where NAC is turned OFF and the network is in the through condition, the threshold step number slightly varies depending on the degree of control.)

When the volume is tuned to step 0 to 14, the output of pin 29 of IC601 is set Hi and Q925 is turned ON. At this time, the reference voltage that will be input into pin 15 (error amp input) of the PWM control IC901 is decreased and the output voltage of the DC/DC converter is lowered ( $\pm 7.5V$ ; RS-A1). When the volume is tuned to step 15 and above, the output of IC601 is set Low and Q925 is turned OFF. The reference voltage that will be input into IC901 is increased and the output voltage of the DC/DC converter is increased ( $\pm 14V$ ; RS-A1).

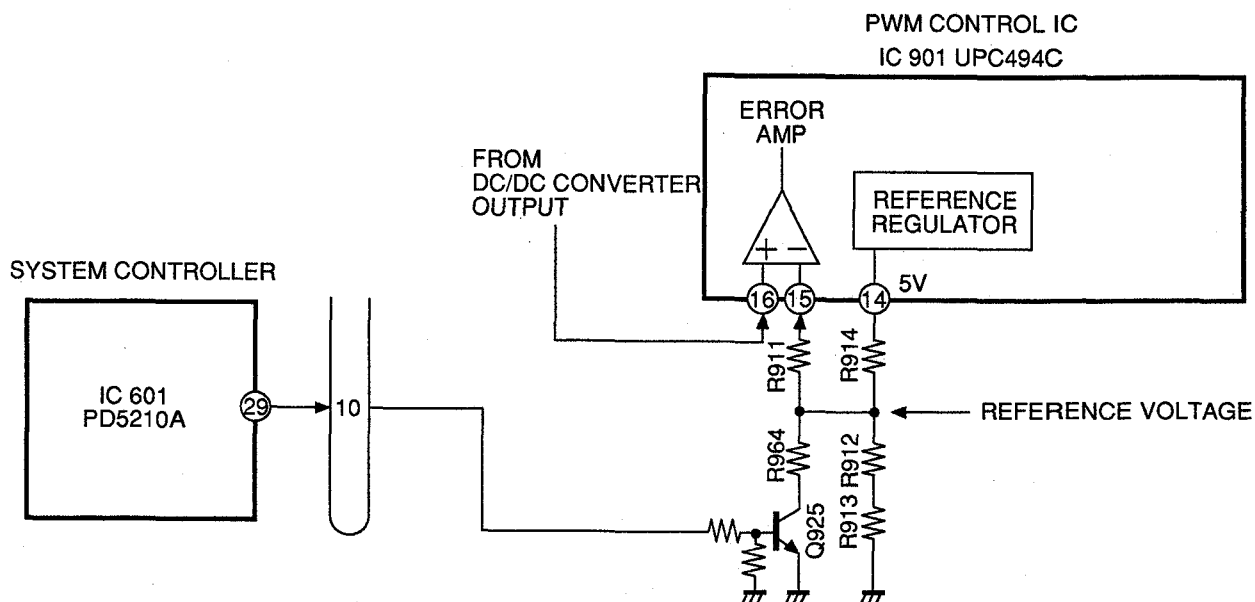


Fig.23

## 18. OPERATIONS AND CONNECTION

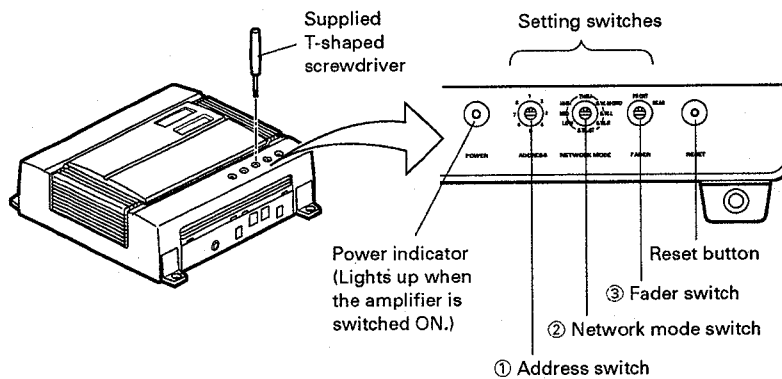
### Setting of this unit

This unit has three setting switches: address, network mode and fader. Set these switches according to the purpose of the speakers to be connected to the amplifier. Incorrect setting will result in improper operation of the ODR System.

### Switching the setting

1. **Change the setting of the switches using the T-shaped screwdriver supplied with the amplifier.**

> Keep the supplied T-shaped screwdriver in a safe place.

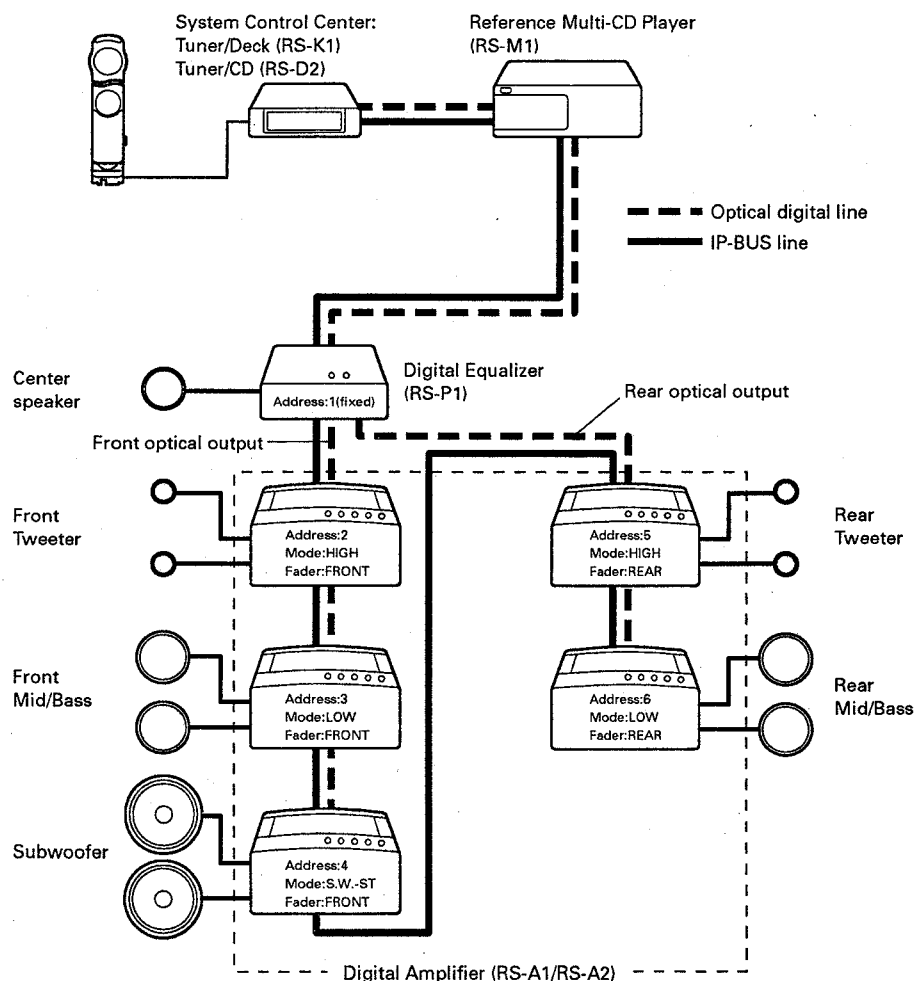


2. **Press the Reset button.**

Always press the Reset button after changing a setting switch (see "Reset Button" on page 60 ). Otherwise the new setting will not be registered.

## Setting Example

- > Read the manual of the ODR System Control Center for specific setting examples.
- > To ensure better sound quality, PIONEER recommends to connect the speakers to the Digital Amplifier in the sequence of high-range, mid-range, low-range, and subwoofer modes. Also, connect the subwoofer to the front OUT. (Although the subwoofer is connected to the front OUT, it may be installed to either front or rear.)
- > The current consumption of the RS-A1 is very high. To avoid overload to the battery, do not connect more than two RS-A1 amplifiers to an ODR System. Also, PIONEER recommends to set the RS-A1 to the front tweeter and front mid-range.



## ① Address setting

Multiple audio units\* such as the RS-A1/RS-A2 Amplifier and Digital Equalizers can be connected to the ODR System. Therefore, each audio unit must be assigned an address as identification number (1 to 8).

Set the address according to the following rules:

- Set a unique address to each audio unit.
- The first audio unit must be assigned to Address 1.
- If the Digital Equalizer RS-P1 is included among the audio units, it must be assigned as Address 1. Therefore, assign Addresses 2 to 8 to other audio units.
- > The RS-P1 is fixed to Address 1, and this setting cannot be changed.
- If the Digital Equalizers RS-P50 is used instead of the RS-P1, assign Address 1 to one of the RS-P50 equalizers.

## ② Network mode setting

Set the mode for the network according to the purpose of the speakers to be connected.

### **THRU mode** (Frequency: 20 — 20,000Hz)

Set to this mode when the speaker to be connected will be used in full-range.

- > In this mode, the functions of the network are disabled.
- > This mode is invalid if the RS-P1 or RS-P50 Digital Equalizer is used in the ODR System.
- > When using the ODR System in this mode, other digital amplifiers (RS-A1/RS-A2) must also be set to THRU mode.

### **S.W. - MONO (subwoofer monaural) mode** (Frequency: 20 — 250Hz)

Set to this mode when the speaker to be connected will be used as subwoofer to output monaural sound.

### **S.W. - L (subwoofer L channel) mode** (Frequency: 20 — 250Hz)

Set to this mode when the speaker to be connected will be used as subwoofer to output L (left) channel sound.

### **S.W. - R (subwoofer R channel) mode** (Frequency: 20 — 250Hz)

Set to this mode when the speaker to be connected will be used as subwoofer to output R (right) channel sound.

### **S.W. - ST (subwoofer stereo) mode** (Frequency: 20 — 250Hz)

Set to this mode when the speakers to be connected will be used as subwoofers to output stereo sound.

---

### \*Audio units

By definition, audio units are Digital Amplifiers, Digital Equalizer and other audio equipment for the ODR System including the following:

- Dual 1/3 Octave Digital Equalizer [RS-P1]
- Universal Digital Preamp/Equalizer [RS-P50]
- Digital "Pure Class A" Integrated Amplifier [RS-A1]
- Digital "Class A" Integrated Amplifier [RS-A2]

**LOW (low-range) mode** (Frequency: 25 — 10,000Hz)

Set to this mode when the speaker to be connected will be used in low-range. The speaker can be used in full-range by adjusting the network frequency. Read the manual of the ODR System Control Center for more detail.

**MID (mid-range) mode** (Frequency: 200 — 20,000Hz)

Set to this mode when the speaker to be connected will be used in mid-range.

**HIGH (high-range) mode** (Frequency: 1,600 — 20,000Hz)

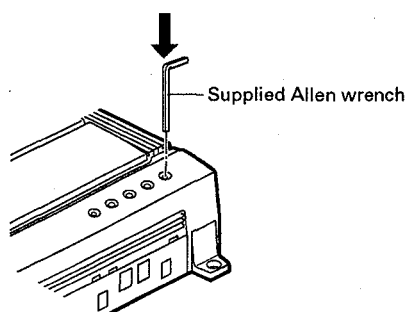
Set to this mode when the speaker to be connected will be used in high-range.

### ③ Fader setting

Select to connect either FRONT or REAR speakers. However, the setting of the fader will be invalid when the network mode is set to subwoofer. In such a case, no fader setting is required.

## Reset Button

- After specifying a new setting with a setting switch, press the Reset button with the supplied Allen wrench. Also, press the Reset button after an error has occurred to the built-in microprocessor.
- > Connect the RS-A1/RS-A2 amplifier to the power supply before pressing the Reset button. Otherwise, the amplifier may not be reset.
  - > Keep the supplied Allen wrench in a safe place.

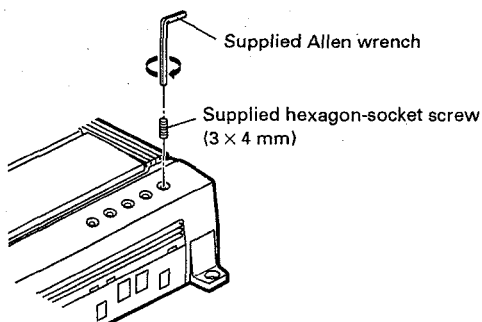


### ⊘ For the audio unit assigned to Address 1:

- Do not press the Reset button imprudently when an error has occurred to the audio unit assigned to Address 1. Keep in mind that pressing the Reset button for the audio unit of Address 1 will reset all other audio units such as the network, equalizer, etc. In such a case, contact your dealer before pressing the Reset button.
- When pressing the Reset button for the audio unit assigned to Address 1, press also the Reset buttons for all the other audio units.

### Protection for the Reset button

To prevent accidental pressing after setting and adjusting all audio units, install the supplied hexagon-socket screw onto the Reset button.



### ⊘ To prevent malfunction:

- Install the hexagon-socket screw so that the screw head becomes flush with the rim of the screw hole.

## Connecting the Units



### CAUTION

#### To prevent short-circuit

- Secure the wiring with cable clamps or adhesive tape. To protect the wiring, wrap adhesive tape around them where they lie against metal parts.
- Do not route wires where they will get hot, for example where the heater will blow over them. If the insulation heats up, it may become damaged, resulting in a short-circuit through the vehicle body.
- Make sure that wires will not foul moving parts of the vehicle, such as the gearshift, handbrake or seat sliding mechanism.



### CAUTION

#### To avoid accidents

- Do not shorten any leads. Otherwise the protection circuit may fail to work when it should.
- Never feed power to other equipment by cutting the insulation of the power supply lead to tap from the lead. The current capacity of the lead will be exceeded, causing overheating.
- Be sure to use the special red battery lead supplied with the amplifier and connect directly to the battery. Use the supplied black ground lead and connect to the vehicle body. (The supplied special red battery and ground leads are designed so that the amplifier can be connected safely.)



#### To prevent overload to the battery

- The power consumption of the RS-A1 is very high. To avoid overload to the battery, do not connect more than two RS-A1 amplifiers to an ODR System.





**To prevent damage**

- Do not use the Digital Fiber Optic Cable CD-D60 and CD-D15 when using more than four optical cables in the entire ODR System. Otherwise no sound may be output.
- When disconnecting a connector, pull the connector itself. Do not pull the lead itself, as it may come away from the connector.
- Speakers to be connected to the RS-A1/RS-A2 amplifier should conform with the standards listed below. Otherwise damage will be caused to the speaker.
- Do not ground the speaker lead directly to the vehicle body. Do not connect multiple negative (–) speaker leads to a single terminal. Doing so may result in no sound from the speakers. Increasing the sound volume in this state may blow the fuse of the amplifier.

Model	Speaker		Standards	
	Channel	Type	Power	Impedance
RS-A1	2-channel	Subwoofer	Nominal input: Min. 15 W	1~8Ω
		Other than subwoofer	Max. input: Min. 30 W	
	1-channel	Subwoofer	Nominal input: Min. 60 W	
		Other than subwoofer	Max. input: Min. 60 W	
RS-A2	2-channel	Subwoofer	Nominal input: Min. 50 W	2~8Ω
		Other than subwoofer	Max. input: Min. 100 W	
	1-channel	Subwoofer	Nominal input: Min. 160 W	
		Other than subwoofer	Max. input: Min. 200 W	



**To ensure grounding**

- > To ensure connection of the ground lead, remove paint with sandpaper if it must be connected to a painted portion.

**To prevent noise**

- > Install and route the special red battery lead supplied with the amplifier as faraway as possible from the IP-BUS and speaker leads. Install and route the battery lead, ground lead, IP-BUS and speaker leads, and the RS-A1/RS-A2 amplifier as faraway as possible from the antenna, antenna cable and tuner.

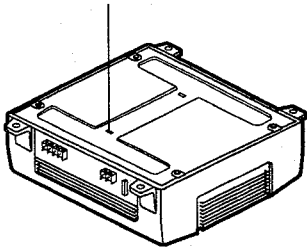
**Connection of the IP-BUS and optical digital line**

- > To prevent incorrect connection, the input side of the IP-BUS and optical digital line connector is colored in blue, and the output side in black. Connect the connectors of the same colors correctly. (The portions to be connected of the IP-BUS connector are colored.)

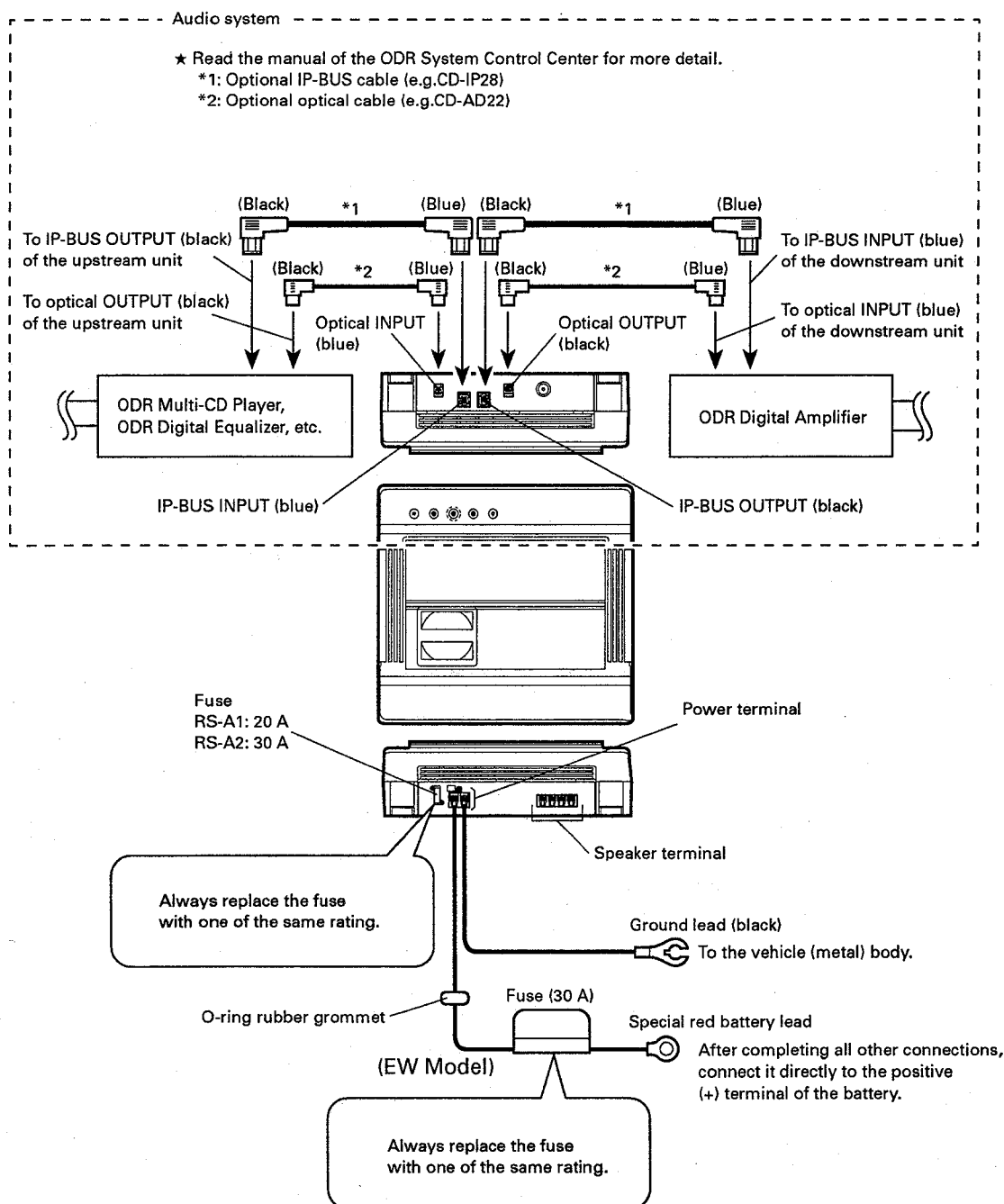
**When AM broadcasts produce beat noise**

- > Change the BFC switch which is located at the bottom of the amplifier between L and H.

BFC switch



## Connection Diagram



## 19. SPECIFICATIONS

### GENERAL

Power source .....	DC 14.4 V (10.8 — 15.6 V allowable)
Grounding system .....	Negative type
Current consumption (RS-A1) .....	7.5 A (4 $\Omega$ , Continuous power)
Current consumption (RS-A1) .....	4.0 A (4 $\Omega$ , No signal)
Current consumption (RS-A2) .....	13.0 A (4 $\Omega$ Continuous power)
Current consumption (RS-A2) .....	1.5 A (4 $\Omega$ , No signal)
Average current consumption* (RS-A1) .....	7.5 A (4 $\Omega$ , 2 channels/1 channel)
Average current consumption* (RS-A2) .....	6.0 A (4 $\Omega$ , 2 channels)
	12.0 A (4 $\Omega$ , 1 channel)
Fuse (RS-A1) .....	Main unit: 20 A
	Special battery lead: 30 A
(RS-A2) .....	Main unit: 30 A
	Special battery lead: 30 A
Dimensions .....	280 (W) $\times$ 86.5 (H) $\times$ 260 (D) mm
	[11 (W) $\times$ 3 (H) $\times$ 10-1/4 (D) in.]
Weight .....	5.4 kg (11.9 lbs.)

### POWER AMPLIFIER (RS-A1)

Maximum power output .....	30 W $\times$ 2/60 W $\times$ 1
Continuous power output .....	15 W $\times$ 2 (20 Hz — 20 kHz, 0.01%, 4 $\Omega$ )
<div style="display: inline-block; vertical-align: middle;"> <div style="display: inline-block; vertical-align: middle;">[</div> <div style="display: inline-block; vertical-align: middle;">EIA power</div> <div style="display: inline-block; vertical-align: middle;">]</div> </div>	30 W $\times$ 2 (20 Hz — 20 kHz, 0.04%, 2 $\Omega$ )
	50 W $\times$ 2 (20 Hz — 20 kHz, 0.08%, 1 $\Omega$ )
	60 W $\times$ 1 (20 Hz — 20 kHz, 0.04%, 4 $\Omega$ )
	100 W $\times$ 1 (20 Hz — 20 kHz, 0.08%, 2 $\Omega$ )
Frequency response .....	5 Hz — 100 kHz (+0, -1 dB)
Distortion .....	0.002% (at 10 W, 1 kHz)
Signal-to-noise ratio .....	102 dB (IHF-A network) (UC)
	102 dB (IEC-A network) (EW)
Load impedance .....	4 $\Omega$ (1 — 8 $\Omega$ allowable)
Slew rate .....	27 V/ $\mu$ sec.
Separation .....	80 dB (100 Hz — 10 kHz)
Damping factor .....	600
Headroom margin .....	0 dB

### POWER AMPLIFIER (RS-A2)

Maximum power output .....	100 W $\times$ 2/200 W $\times$ 1
Continuous power output .....	50 W $\times$ 2 (20 Hz — 20 kHz, 0.01%, 4 $\Omega$ )
<div style="display: inline-block; vertical-align: middle;"> <div style="display: inline-block; vertical-align: middle;">[</div> <div style="display: inline-block; vertical-align: middle;">EIA power</div> <div style="display: inline-block; vertical-align: middle;">]</div> </div>	80 W $\times$ 2 (20 Hz — 20 kHz, 0.04%, 2 $\Omega$ )
	160 W $\times$ 1 (20 Hz — 20 kHz, 0.04%, 4 $\Omega$ )
	(DIN45500, +B=14.4 V)
Frequency response .....	5 Hz — 100 kHz (+0, -1 dB)
Distortion .....	0.002% (at 10 W, 1 kHz)
Signal-to-noise ratio .....	106 dB (IHF-A network) (UC)
	106 dB (IEC-A network) (EW)
Load impedance .....	4 $\Omega$ (2 — 8 $\Omega$ allowable)
Slew rate .....	30 V/ $\mu$ sec.
Separation .....	75 dB (100 Hz — 10 kHz)
Damping factor .....	600
Headroom margin .....	0 dB

### DSP/PREAMP

Tone controls (parametric)	
Bass frequency .....	63 Hz, 100 Hz, 160 Hz, 250 Hz
Treble frequency .....	4 kHz, 6.3 kHz, 10 kHz, 16 kHz
Level .....	$\pm$ 12 dB
3-band parametric equalizer	
Frequency .....	20 Hz — 20 kHz, 1/3 oct.
Level .....	$\pm$ 12 dB
Q factor .....	1.8/2.6/4.3
Network (selectable)	
SUBWOOFER .....	HPF frequency: 20 Hz — 100 Hz, 1/3 oct.
	LPF frequency: 25 Hz — 250 Hz, 1/3 oct.
	Level: +10 dB — -24 dB (0.5 dB)
LOW .....	HPF frequency: 25 Hz — 250 Hz, 1/3 oct.
	LPF frequency: 250 Hz — 10 kHz, 1/3 oct.
	Level: 0 dB — -24 dB (0.5 dB)
MID .....	HPF frequency: 200 Hz — 10 kHz, 1/3 oct.
	LPF frequency: 2 kHz — 20 kHz, 1/3 oct.
	Level: 0 dB — -24 dB (0.5 dB)
HIGH .....	HPF frequency: 1.6 kHz — 20 kHz, 1/3 oct.
	LPF frequency: 8 kHz — 20 kHz, 1/3 oct.
	Level: 0 dB — -24 dB (0.5 dB)
Slope .....	PASS, -6, -12, -18, -24, -30, -36 dB/oct.
	(HPF of MID and HIGH doesn't have PASS mode)
Phase .....	NORMAL/REVERSE
Time alignment .....	0 — 10 msec.
Position adjustment .....	Time: 0 — 10 msec.
	Level: 0 — -30 dB
Sampling frequency .....	44.1 kHz
Digital input .....	Optical input
Digital output .....	Optical output

> The specifications and design are subject to change without prior notice.

Products purchased may differ from illustrations of this manual.

### \*Average current consumption:

The average current consumption is an average, which is close to the maximum current consumption of this unit when music signals are input. Use this average to calculate total current consumption when using multiple amplifiers.